JULY
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PETROLEUM WEEK

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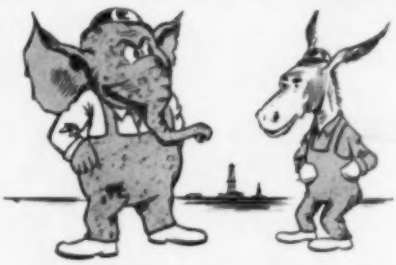

How will the change in the White House affect petroleum?
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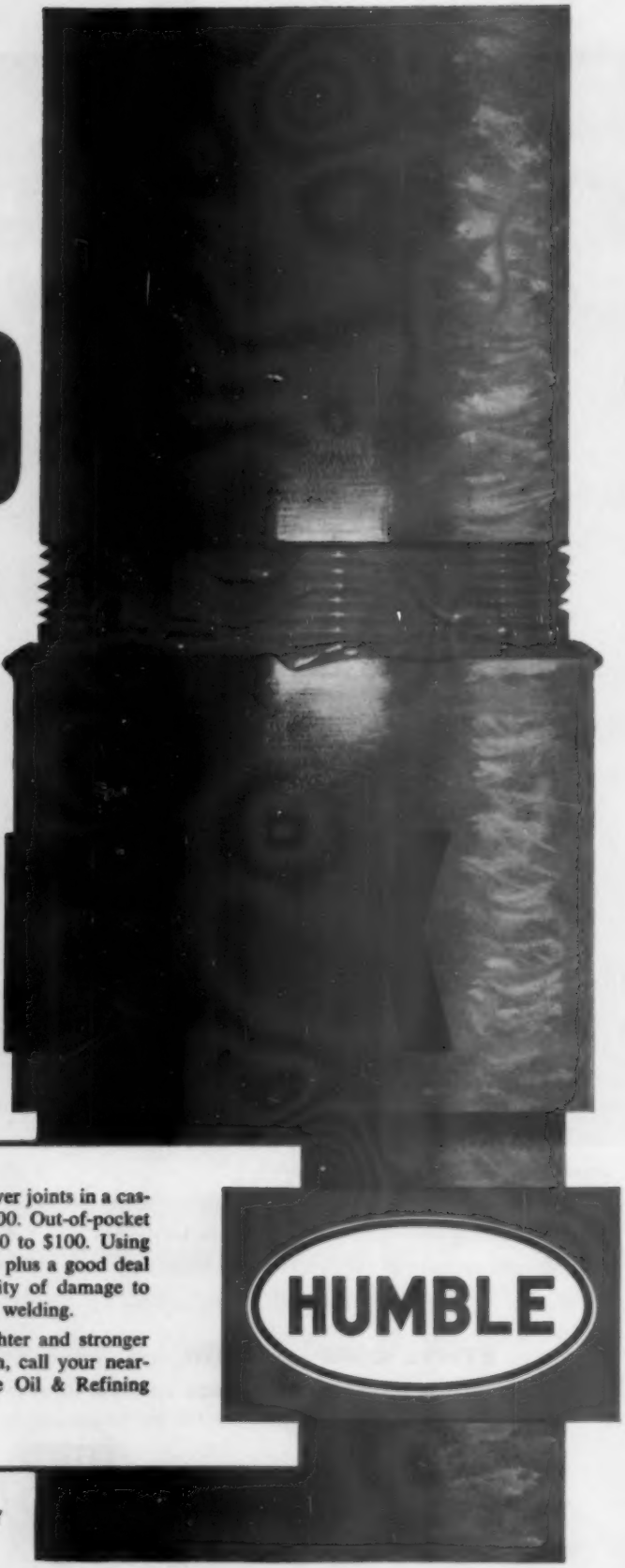

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INSIDE Slant

WHO SHOULD BE BLAMED?

The natural gas industry always gets the blame from utilities when a rate increase is sought.

This opening sentence from a recent press release is a good example:

"The higher cost of natural gas piped from Texas and New Mexico, plus the higher costs of materials, wages, taxes, California gas, and borrowed money, will require increased rates to customers. . ."

Here, the emphasis is on a new wholesale price, indicating that it is the major reason for the rate increase application.

But actually, the opposite is true. The wholesale gas price hike is less than half of the total increased cost outlined by the applicant.

The applicant's own figures show that total costs will rise $26.6-million. The wholesale gas price boost accounts for only $9.8-million of the total. The remaining $16.8-million is attributable to the other higher costs and a return to investors.

It is no wonder that the natural gas industry continually is blamed for higher prices.

The facts are that the producer shares little, if any, in rate hikes.

LeRoy Menzing
Editor

THE QUALITY OF THINKING

The mind of Galileo—keenly analytical, superbly trained—led him to founding the science of experimental physics, which, centuries later, is revealing the mysteries of space. It is self-evident by his achievements that Galileo's mind reached a level of quality far above ordinary standards of excellence.

Within the same area of meaning, the quality of minds responsible for an engineering project can be evaluated only by results. When you check the record of Brown & Root's engineering through the years, the high quality of thinking reveals itself. Customer satisfaction from greater efficiency at lower costs has built a worldwide reputation for engineering and construction by Brown & Root.

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60-Second Summary / WHAT'S HAPPENING IN OIL

July 22, 1960

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The international posted price structure for crude is tottering on the brink. Big discounts are being offered by large as well as small sellers and, as dramatized in India, this has now spread to sales by majors to their affiliates. . . . p. 14

•

Air drilling has scored heavily in one of its most extensive tests to date. It has effectively speeded drilling in a program involving more than 400 holes in the Oklahoma and Texas Panhandles. . . . p. 19

•

The new occupant of the White House will be of unusual importance to the petroleum industry. Another try will be made to free gas producers from utility-type controls. Kennedy has voted against such legislation; Nixon endorsed it. . . . p. 11

•

Underwater rubber tanks may be the answer to temporary, low-cost storage of offshore oil. The U.S. Navy is now testing a prototype tank in the Gulf of Mexico, off Louisiana. . . . p. 38

•

Sand is its own best filter. That's the theory that led Halliburton Co. to develop a downhole screen—to screen sand with sand. . . . p. 22

•

Instead of a growth industry, oil may be a declining one, according to a Harvard economist. Basically, he says, oil is too one-product oriented. . . . p. 13

•

Atlantic Refining Co. has burst into the Libyan oil play with a large offshore tract. The company outbid Phillips Petroleum Co. for a 10,500-sq. mi. bloc. . . . p. 41

•

The possibility of burning heavy fuel oils in diesel engines is moving closer. A new type of fuel-injection nozzle is the key to the latest development. . . . p. 32

•

Complexity of interests marks the booming petrochemical industry in Australia. Most plants are joint ventures of American, Australian, and British Companies. . . . p. 31

•

Iraq's communists are demanding that the 50-50 profit-sharing principle be extended to all oil operations. In addition, they want government participation in ownership of Iraq Petroleum Co. . . . p. 41

•

Small companies are playing a waiting game in Lake Erie drilling. The bigger firms, however, are speeding up plans, which were off to a slow start this year. . . . p. 24

Up to the Minute

SIGNIFICANT LATE NEWS

AT-A-GLANCE PETROLEUM WEEK

July 22, 1960

Domestic crude output in August will average close to the 6,835,000 b/d rate indicated for July. Texas and Oklahoma this week decided to continue their July allowables into August; similar action was taken in New Mexico earlier. The eight-day producing schedule in Texas next month—the fourth consecutive one—will mean an initial allowable of 2,630,069, unchanged from mid-July. In Oklahoma, the Corporation Commission agreed to requests to keep the permissible unchanged at 488,000 b/d.

Humble Oil & Refining Co. said demand for Texas crude has exceeded supply by 170,000 b/d for the past four weeks. Humble, the largest buyer in Texas, requested a ten-day schedule, estimating that the eight-day pattern will require it to buy 100,000 b/d on the spot market next month. Six large purchasers, joined by independent producer groups, asked for an eight-day schedule; five requested nine days; and Standard of Texas, along with Humble, sought ten days.

•

The coal industry is working for a statement favoring curbs on oil and gas competition in the Republican platform. The National Coal Assn. urged the GOP platform committee this week to adopt a plank calling for "equality of opportunity" for competitive fuels. Specific complaints were made against "dumping" of natural gas as a boiler fuel, and the level of residual fuel oil imports. Walter F. Schulten, vice-president of Consolidation Coal Co., asked the committee to support enforcement of the mandatory imports control plan.

•

Oklahoma Oil Co. and Pate Oil Co. have merged "according to plan" into Humble Oil & Refining Co. They will operate in the Midwest as the Oklahoma-Pate division of Humble. The move completes the consolidation of domestic operating affiliates of Standard Oil Co. (N. J.).

•

Pan American Petroleum Corp. has acquired a 50% interest in Texas Gas Corp. The acquisition gives the Indiana Standard subsidiary an interest in a 400-mi. intrastate natural gas system serving the Beaumont-Orange-Port Arthur (Tex.) areas, and gas processing facilities.

•

Tennessee Gas Transmission Co. and Petroleos Mexicanos have signed a preliminary agreement for a Texas-to-California gas line. The proposed line, to be constructed across northern Mexico and financed by the Mexican government through U.S. banks (PW—Jul.8'60,p21), would have a capacity of 450-million cf/d. Export permits to put U.S. gas into the line, as well as import permits at the California border, would have to be sought from the Federal Power Commission.

•

Standard of Indiana has introduced a travel-accident insurance service for its credit-card holders. A $10 semiannual premium provides maximum benefit of $25,000 for accidental death.

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Views That Make News . . .

"A prompt and firm policy even from us smaller companies is required to stop the degradation of Cuba's petroleum industry, which is being perpetuated by the cooperation of ship owners and brokers who charter for deliveries of Russian crude to the refineries recently confiscated."

—W. L. THEISEN
Marine Manager
Golden Eagle Refining Co.

"This matter of imports of foreign oil, which bears a direct influence not only on the daily volume of crude produced by domestic operators but upon the price received for their production, [must] be thoughtfully and promptly reviewed to the end that the process of gradual deterioration of the domestic petroleum industry be halted."

—GEORGE SHIPLEY
U.S. Representative
from Illinois

"As an oil marketer, my first responsibility is the sale of a maximum number of gallons of petroleum products at profitable prices. This is our business; this is where we make our money. We did not enter into the business of being service station landlords, or merchandisers of TBA, or conductors of sales training schools, or operators of a credit card agency, except to advance this main objective: sales of petroleum products through an active, healthy, profitable dealer organization."

—J. H. HALL
General manager,
head-office marketing
Shell Oil Co.

. . . and Letters

Dear Sir:

I was quite impressed by your Petroleum Comments column, "Coal Wins by Default: A Washington View" [PW—Jul.1'60,p15].

Most businessmen, and lawyers, too, regard argument as something that is done for the purpose of convincing a government official charged with making a decision. Once the official, administrator, or congressman has made a decision, he regards additional argument as a waste of time. The truth, as you have pointed out, is that in a city as sensitive to public opinion and political pressures as Washington, the purpose of most arguments, statements, letters, press releases, etc., is not to convince anyone, but to build up a record upon which our friends can stand.

The labor unions and many other groups are much more aware of this fact of political life than the oil industry has been.

DONALD C. O'HARA
Assistant general counsel
National Petroleum Assn.

Dear Sir:

Please let me express a word of appreciation to PETROLEUM WEEK for the rousing column, "Coal Wins by Default: A Washington View."

JOSEPH L. SEGER
Vice-president for public affairs
Humble Oil & Refining Co.

Dear Sir:

Your column, "Coal Wins By Default: A Washington View," certainly was needed by the oil industry. I thought you did an excellent job on the subject.

CLEVE BULLETTE
Service Pipe Line Co.

Dear Sir:

Many thanks for your prompt answer to my letter concerning the percentages used in the article on the waterflood hearing. Assuming that by saying the 1947 yardstick could be 100%, and a bonus of 25% would make a total of 125%, then in that part of the article which shows our proposal on the incentive ceiling for water-floods, it should read 200% of the 1947 yardstick. In that part of the report we propose that the operator could conceivably get the yardstick allowable plus 100%.

I agree that this is probably being technical, but, to be consistent, we should either say 200% for the water-floods and 125% for the pressure maintenance, or 100% and 25%.

KIRK JORDAN
Executive secretary
West Central Texas Oil & Gas Assn.

PETROLEUM WEEK will publish each week comments from readers on timely, pertinent subjects. Such expressions are welcome.

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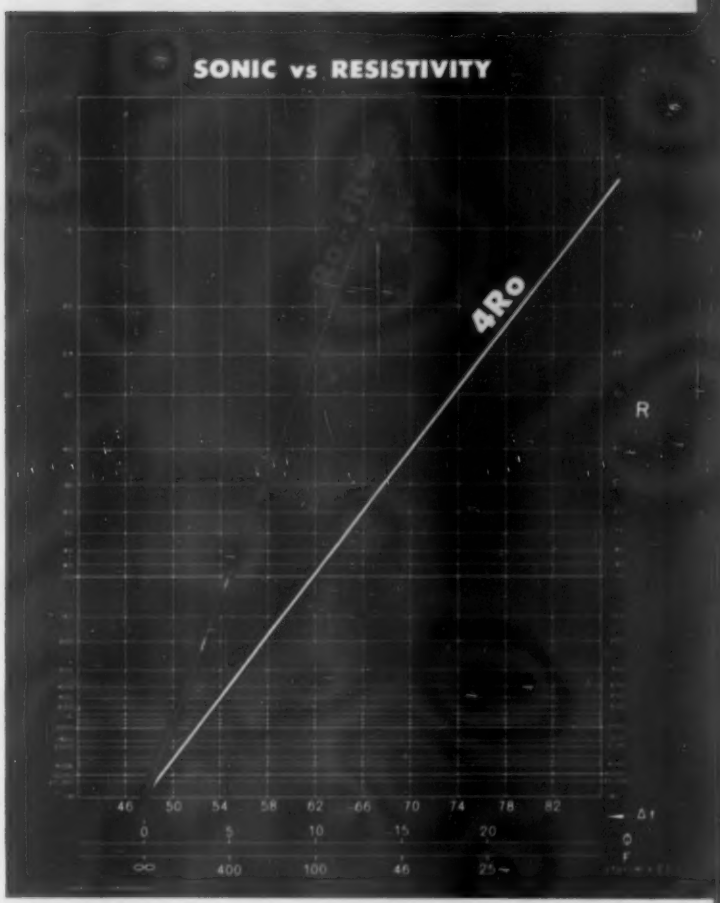

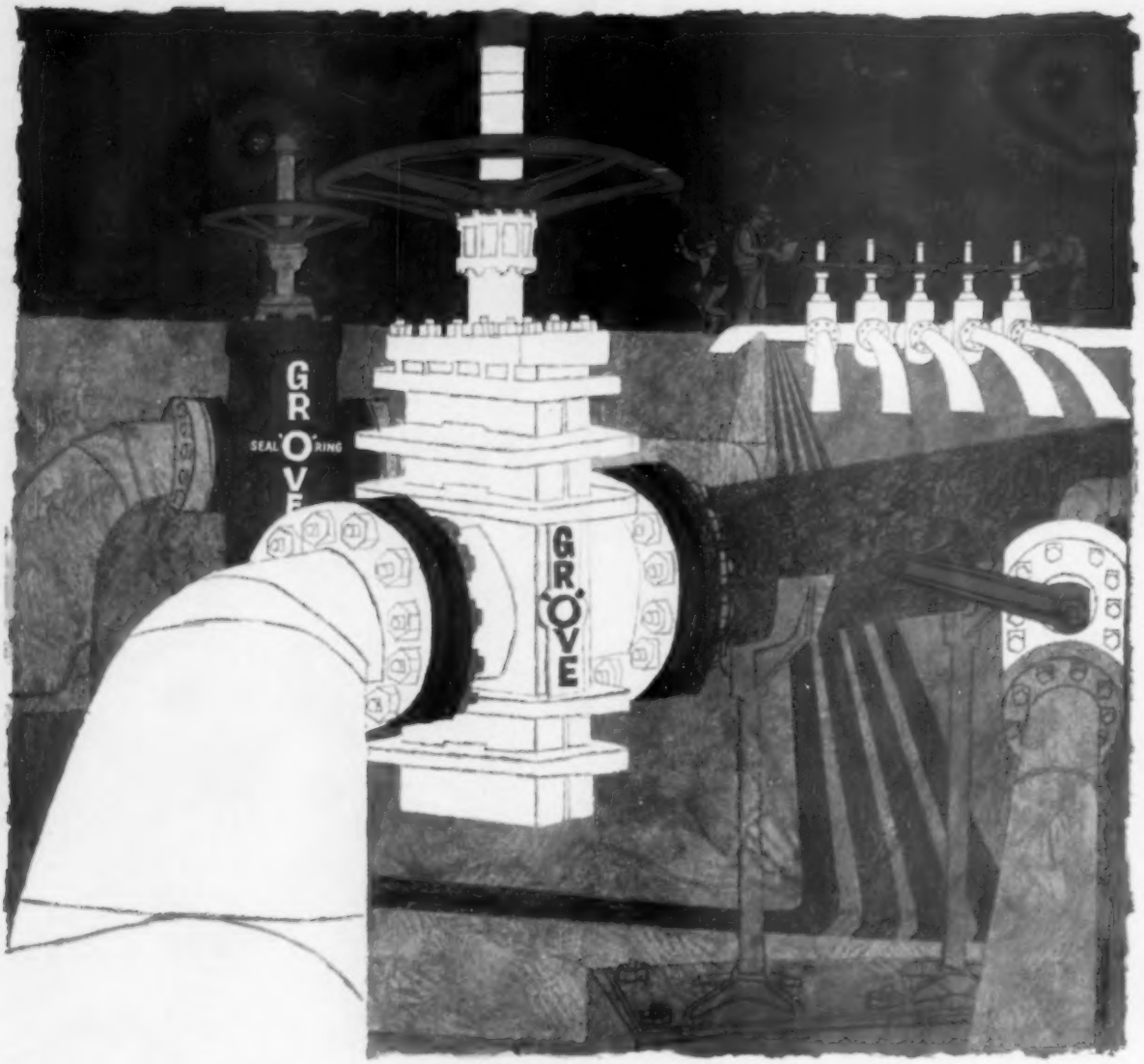

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Kennedy and Nixon differ sharply on major petroleum matters

The Election Is Important to Oil

The petroleum industry's stake in the 1960 presidential election centers primarily on natural gas legislation, percentage depletion, fuels policy study, and imports regulation—and in just that order.

There are, of course, several other fields of legislation that either presidential candidate might favor that will be important to oil, as well as to industry in general.

Changes in antitrust legislation is one field for sure. Minimum wage legislation is another.

Indirectly, the promises of candidates in the areas of increased federal aid to the aged and to schools, and government-sponsored incentives for homebuilding also are important to industry—in that those measures would affect taxes.

Those appear to be the key issues that will be argued from now until the election Nov. 8 between the Democratic team—Sen. John F. Kennedy of Massachusetts and Sen. Lyndon B. Johnson of Texas—and the Republican standard-bearers. The latter will be nominated in Chicago next week, with Vice-President Richard M. Nixon, of California, picked by the experts as the odds-on choice to run for president.

Some of the broad-sweeping issues of the coming campaign will be aired before Congress when it resumes its session Aug. 8, though there is little likelihood that major bills affecting oil will come up next month.

The Democratic majority, with the party's so-called liberal wing firmly in power, is set to push for legislation with the primary aim of raising the present $1-an-hour minimum wage and expanding its coverage to more workers, and more federal aid in several fields.

Democratic candidate Kennedy and prospective Republican candidate Nixon present a sharp contrast on matters important to petroleum.

The key to Kennedy's position on oil and gas issues is his voting record during eight years as a Democratic senator from Massachusetts. His House of Representatives "apprenticeship" totaled six years, starting in 1946.

Nearly eight years as Vice-President and presiding officer of the Senate have prevented Nixon from having a recent voting record for or against oil and gas, though he has made his views known in speeches.

Kennedy, coming from oil-and-gas-consuming New England, has taken an almost consistent line of opposition to the petroleum industry. And he is opposed to import restrictions.

But his record must be viewed in the light of sectionalism—a free-trade advocate who supports restraints on imported goods competing with those manufactured in his home state.

Just how much different a President Kennedy would be from Sen. Kennedy is difficult to assess. His friends and

associates claim he is more of an economic conservative than he generally appears to be—that he is against what he regards as undue government interference with business.

Kennedy has voted against freeing natural gas producers from federal controls.

His views on such legislation are important, since it is now expected that the first petroleum legislation that may come before the 87th Congress in January will be a bill backed by all three segments of the gas industry to remove utility-type regulations on producers (page 16).

During the Senate debate on the Harris-Fulbright natural gas bill, in January, 1956, Sen. Kennedy joined Sens. Douglas, Morse, Clark, and others in opposing the bill.

His pertinent comments were: "I agree with the general principle that regulation by the federal government of any business activity should be undertaken only where there is the clearest demonstration that such regulation is absolutely necessary to protect the interest of the public . . .

"Applying that principle to the natural gas situation . . . it seems to me abundantly clear that the nature of the industry calls for regulation. . . Far from protecting the consumer, [the bill] is more detrimental to consumer interests than any measure brought before this body in recent years."

Nixon has no recent voting record on natural gas legislation, but he is described as a stronger advocate of freedom for producers than President Eisenhower.

But before he became Vice-President, Nixon supported the Kerr bill and similar legislation. Although he has taken no stand on consumer protection in a bill exempting producers from utility-type controls, as a political realist he would probably make that point when gas legislation is considered in the future.

But, his supporters claim, he would come closer to accepting the type of consumer protection preferred by the industry than Eisenhower, who was greatly influenced by New Englander Sherman Adams on that issue.

Kennedy has voted twice for legislation that would have limited the 27.5% depletion rate to producers grossing less than $1-million annually.

The proposals he supported would have reduced the percentage permitted to 15% for those grossing more than $5-million, and to 21% for those in the $1-million to $5-million bracket.

Those were the provisions of a bill by Sen. William Proxmire (D., Wis.) in 1958, and one by Sen. Paul Douglas (D., Ill.) in 1960. Kennedy voted for both.

But in 1958, Sen. Kennedy voted against an amendment by Sen. John J. Williams (R., Del.) that would have slashed the percentage allowed to a flat 15%. He was absent from the Senate's depletion vote in 1959.

Kennedy, as well as vice-presidential nominee Johnson, are pledged to support the Democratic Party platform, calling for closing "the loopholes in the tax laws by which certain privileged groups escape their fair share of taxation. The more conspicuous loopholes are depletion . . ."

Nixon voted against a depletion-cutting amendment offered by Sen. Hubert Humphrey (D., Minn.) in 1951. And this spring he told an audience on a tour that he "is for the 27.5% depletion" provision of the tax laws.

On both big issues—percentage depletion and natural gas legislation—Nixon said the "best political answer . . . would be to oppose both, especially as far as depletion is concerned . . . but I refuse to give that answer."

As a member of the House, Nixon voted for the Kerr bill to exempt producers from control in 1949. But in 1950—still a representative—Nixon was recorded as not voting on the House-Senate version of the Kerr bill.

Oil's stake in the election could depend to some extent not on the top candidates, but rather on the role to be played by Lyndon Johnson, either as Vice-President, or as Senate majority leader.

Johnson is in a unique position in U.S. politics, since he is running for reelection as senator from Texas at the same time he is running for the Vice-Presidency.

A Democratic presidential victory would, of course, remove Johnson as the majority leader, a position from which he has had the top say in steering (or blocking) legislation in the Senate.

While neither he nor his fellow Texan, House Speaker Sam Rayburn, has ever felt heavily indebted to the oil industry for support, neither has supported bills that would have a detrimental effect on oil.

The real unknown is whether Vice-President Johnson would wield more or less influence in the Senate than Majority Leader Johnson.

Though there are conflicting views as to why Johnson decided to run for the Vice-Presidency, some of his supporters claim that he accepted the No. 2 spot on the ballot on the basis of retaining certain powers on legislative matters and Cabinet appointments should the Democratic ticket win.

They say that those powers will give him the upper hand over the future majority leader, regardless of the latter's views on matters pertaining to oil and gas.

Insiders predict that Johnson still has his eye on the top spot, and that should Kennedy win and serve two terms, the Texas Democrat will still be young enough in 1968 to seek the Presidency.

Therefore, the prediction is that, as Vice-President, Johnson would work hard at the job, and that he would definitely try to bring great influence on a Kennedy Administration—despite the difference in views between the two wings of the Democratic Party that each represents.

The shape of import controls could change some, regardless of which party wins the presidency. But no one looks for any earthshaking upset.

Most political observers see the imports issue as nonpartisan. The legislative authority for regulation was devised by a Johnson-Rayburn Democratic Congress. The Eisenhower Administration accepted the authority, and put it to work by executive order.

The next President could abolish the program simply by rescinding the 1959 executive order, but such a move isn't expected.

Here is a consensus of oil men and Washington observers:

Kennedy would be the most likely person to alter the import program

The Saltonstall Plan

The Republican senator from Massachusetts Leverett Saltonstall wants separate and higher allocations for residual fuel oil imported into New England.

Saltonstall this week asked Interior Secretary Fred Seaton for "prompt remedial action" to halt fuel oil price increases in New England, which he blamed on oil import allocations.

The senior Massachusetts senator said the imports program has caused a rise of 15¢ per bbl. for residual oil in the area.

He suggested that New England be given a separate treatment with higher allocations than other Atlantic states, which, he said, have alternative sources of fuel supplies.

by easing restrictions, but there is no assurance that Nixon would not favor some relaxation. His reasoning would differ, however, from that of his opponent.

Kennedy has made his position quite clear on opposition to limitations on oil imports and other basic commodities. But he has not been consistent where imports of watches, textiles, and shoes—manufactured items competing with New England industries—have been involved.

He sided with oil-state senators and voted for the Gore Amendment in 1954 to extend the Reciprocal Trade Agreements for three years, instead of an Administration-backed proposal for a one-year extension.

Nixon, close observers say, is not so strong for oil import restrictions as the Eisenhower Administration has been. If he's elected, some feel that he would favor relaxing limitations, particularly in deference to Venezuela.

There is a possibility—particularly if the Democrats win—of a reassessment of the imports program.

There are demands in Congress, from both sides of the aisle, that imports be increased and that imports be reduced—depending on the home state of the congressman speaking at the time (box, page 12).

Thus, although no major upset by a new President on such a controversial subject is expected, the odds favor a new study by the next Administration.

Such a study could be done by the Office of Defense & Civilian Mobilization or a Cabinet Committee, or the new President might encourage a study by a Congressional committee.

Harvard economist predicts:

Oil May Be a Declining Industry

The petroleum industry "is not only ceasing to be a growth industry, but may actually be a declining one, relative to other business," according to Theodore Levitt, a former economic consultant to the oil industry.

Now a lecturer in business administration at the Harvard Business School, Levitt predicts that within 25 years oil "may find itself in much the same position of retrospective glory that the railroads are now in."

His prophecies are contained in the July-August issue of the Harvard Business Review.

Oil's troubles, he predicts, may stem from over-emphasis on improving efficiency of producing and making its products, "not really on improving the generic product or its marketing."

Moreover, Levitt charges, the chief product "has continuously been defined in the narrowest possible terms, namely, gasoline, not energy, fuel, or transportation."

The history of every so-called growth industry, he observes, shows a "self-deceiving" cycle, based on four guarantees:

(1) The belief that growth is assured by an expanding population, (2) the belief that there is no competitive substitute for the industry's major product; (3) too much faith in mass production and in the advantages of rapidly declining unit costs as output rises; and (4) preoccupation with a product that lends itself to carefully controlled scientific experimentation, improvement, and manufacturing cost reduction.

Levitt says the evidence shows that oil "has never been a superior product for any purpose for very long . . . [and] . . . that oil has never really been a growth industry."

Instead, he argues, "oil has been a succession of different businesses that have gone through the usual historic cycles of growth, maturity, and decay." He traces those from crude petroleum as a patent medicine, to kerosine for lighting, to oil for domestic home heating, and on to the growth of aviation ond dieselized railroads.

The greatest incentives for product usage, such as development of tetraethyl lead and the creation of a nationwide heating demand for gas, came from outside the petroleum industry, Levitt maintains.

"Having let others steal marvelous opportunities from it, one would expect [oil] to take steps never to let this happen again . . . We are now getting extraordinary new developments in fuel systems specifically designed to power automobiles . . . but petroleum is almost systematically ignoring them, securely content in its wedded bliss to oil," he charges.

"It's the story of the kerosine lamp versus the incandescent lamp all over again," Levitt states.

Oil is trying to improve hydrocarbon fuels rather than to develop fuels best suited to the needs of their users, Levitt argues.

He notes that more than a dozen nonpetroleum firms have advanced working models of "energy systems" which, when perfected, will replace the internal combustion engine. The superior merit of these systems—mostly fuel cells—is the elimination of time-consuming stops for refueling.

Several other companies, he says, have advanced models of electric storage batteries designed to power automobiles.

And finally, solar energy conversion systems are getting increased attention, he adds.

He concedes that a few oil companies are working on fuel cells, but they are confined to developing cells powered by hydrocarbon chemicals.

Unless oil is especially lucky, "as it has been until now, it can easily go down in a sea of red figures—just as have railroads, buggy whip manufacturers, and the corner grocery store," Levitt concludes.

Significant Sidelights

■ **Efforts were made this week for closer coordination of work of numerous oil associations on matters of common interest to the domestic industry.**

The staffs—the paid workers—of certain state and regional associations met with the staff of the Independent Petroleum Assn. of America in Chicago at the latter's invitation.

The majority of these groups recognize IPAA as their national representative in matters concerning the industry in Washington. But the state and regional bodies have felt that they should have more of a voice in decision-making, particularly on issues on which they do not fully agree.

This week's meeting was designed as a mutual discussion of industry problems aimed at reaching a better understanding.

PETROLEUM COMMENTS

By Wanda M. Jablonski

World Crude Price Postings Getting Shaky

The international posted crude oil price structure is tottering on the brink.

It would still be foolhardy, of course, to predict an actual imminent cut in world crude postings—if only because no large company has any real desire to take such a lead (the only real profit left in the oil business today is in the crude production phase). Nor is anyone anxious to face the uproar such a move would undoubtedly precipitate in the producing countries of the Middle East and in Venezuela.

* * * *

But there can be no question that pressures on both the Middle East and Venezuelan posted price structure are piling up rapidly—and to a dangerous point.

"The real question no longer is whether the oil industry wants to cut these postings," observes one top executive, "but whether it will be able to actually stave off such a cut."

True, sales at substantial discounts below posted prices are nothing new at either of these two main world oil export centers. Offerings at 75¢ to 80¢ a barrel off postings in Venezuela have become routine. So have discounts of 20¢ to 35¢ at the Persian Gulf.

But on the whole, until recently such discounting involved only a relatively small proportion of the total volume of crude oil moving in international trade.

* * * *

Now, however, the picture is changing quite markedly. Sharp discounting is no longer confined largely to sellers with limited sources of supply. New, and bigger, cut-price forces have entered the market. And everybody is now getting into the act, even major suppliers, in an ever-sharpening fight for outlets.

Take just one example. Recently, AGIP, Italy's state-owned oil unit, made a deal to purchase Russian crude at a delivered price some 60¢ per barrel below equivalent Middle East oil (and Enrico Mattei, AGIP's head, took the occasion to chastize major companies publicly for "overcharging" the Italian public on Middle East crude). And at least two major oil companies have made deals for delivery of Middle East crude to Italy at discounts of 58¢ and 91¢ per barrel, respectively (that is, below Middle East postings plus Afra tanker rates).

Or look at Japan, by far the biggest crude market in the Far East. A tremendous amount of discounting is going on there now—furthered by Japan's present system of currency controls, which in effect gives an extra import allocation to the refiner with the lowest-priced source of imported crude. Under this system, the size of the discounts can no longer be kept secret (or hidden in "free transportation" and other gimmicks). The net result is that each new, bigger discount almost automatically starts a new round of cuts.

"If it was still just a case of price cutting by some independents with limited crude supplies, it would be one thing," says one oil executive. "But when discounts are being offered openly by just about all major companies with unlimited supplies of crude at the Persian Gulf, the situation is altogether different.

"One can no longer pretend that present postings even remotely reflect the true market price."

* * * *

On top of all this, there is now another new, and very significant, development.

It has been precipitated in India. But it could have happened just as well in any number of other markets.

It may challenge the whole existing marketing system of the international major companies—whereby their price discounting has been restricted to third parties, while crude sales to wholly owned affiliates have been maintained at full posted prices.

This system of selling crude to affiliates at full posted prices has been essential in holding up these postings in the current weak market. The 50% crude oil profit-sharing tax paid to Middle East governments is based on the full posted price.

Now look at what's happened in India. Recently, the government notified the three big refineries there —all wholly owned affiliates of international majors— that it had been offered crude by Russia at a price substantially below the level at which these companies were importing from their parent companies.

The Indian Government made it clear that in order to save foreign exchange it wanted the companies to use the cheaper Russian crude, or import their Middle East crude at more competitive prices.

The companies declined to use the Russian crude, but have agreed to some price reductions. As of midweek, at least one major supplier had offered to reduce the delivered cost of its Middle East crude by an average of 27¢ a barrel (15¢ on one grade and 30¢ on another).

* * * *

Here's how one top executive sums things up:

"We realize that this decision on India represents a very basic policy change. In effect, we had to cross the bridge on the question of discounts to affiliates— for we realize this may spread to some other areas.

"The tremendous amount of price discounting to third parties is bad enough. If it now spreads to affiliates, the fat's in the fire."

What's New / IN THE INDUSTRY

The eastern district meeting of API's Division of Production will be held in Pittsburgh, Pa., not White Sulphur Springs, W.Va., as originally scheduled.

A strike of employees at The Greenbriar Hotel has forced API to switch the July 27-29 meeting to the Pittsburgh Hilton Hotel, instead.

•

The problem of Texas' sagging oil economy will be aired at the Aug. 5-6 meeting of the Texas Independent Producers & Royalty Owners Assn. in McAllen.

The imports committee, headed by Jerome O'Brien, of Midland, will meet Aug. 5 to discuss the impact of imports on Texas production. In addition, it will take up proposals for getting a more favorable balance for domestic producers.

The executive committee, headed by John G. Hurd, of Laredo, will meet the next day and discuss prospects for getting Congress to revise the Natural Gas Act, proposals to change state laws on ratable-taking of oil and gas, and the decline in state revenues due to curtailed oil production.

•

New Mexico's August crude allowable will remain unchanged from July at 33 b/d in the southeast and 70 b/d in the northwest.

August production is estimated at an average of 286,128 b/d, down 3,772 b/d from the anticipated average of 289,900 b/d in July.

•

The Securities & Exchange Commission has cleared the way for Cities Service Co. to buy all the minority stock of Arkansas Fuel Oil Corp. held by the public.

The commission has approved the plan under which Cities Service will acquire minority shares of Arkansas Fuel at $41 a share. Cities Service already owns 51.5% of the company's stock.

Cities Service had previously decided to exercise the option granted it by SEC to purchase minority shares, rather than to dispose of its majority interest in the company.

Cities Service will now apply for approval of the commission's plan in the U.S. District Court at Wilmington, Del.

•

The so-called Rock Springs Project has been approved by a Federal Power Commission examiner despite the vigorous opposition of the FPC staff and California fuel oil interests.

The project is the joint plan of El Paso Natural Gas Co. and Colorado Interstate Gas Co. to deliver up to 470-million cf/d of Rocky Mountain and West Texas natural gas to Los Angeles.

The plan now goes to the full commission for final hearing.

In approving the project, Examiner Emery J. Woodall criticized fuel oil intervenors and rejected the claim that the project isn't economic.

New Wilshire Chief

Raymond D. McGranahan will direct Gulf Oil Corp.'s entry into the fast-growing West Coast market as president of Gulf's newly acquired Wilshire Oil Co. McGranahan, who was appointed this week, was formerly administrative vice-president and coordinator of transportation for Gulf. Wilshire's former president, Edwin G. Coopman, will continue as a director.

Wilshire, which is continuing to operate under its own name, has a 33,000 b/d refinery at Norwalk, Calif., and distributes through some 600 retail outlets in California, Arizona, and Nevada (PW—Jul. 1'60,p6).

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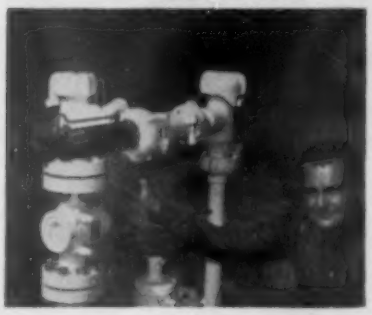

The New Unibolt Pressurematic Wing Valve

- ***Automatically shuts in the well when flowline pressures rise or fall beyond desired limits.***
- ***Permits manual operation for choke changing.***

A broken flowline or the failure of any unit in the separator, heater-treater, or gathering manifold that would cause the flowline pressure to *drop*, would automatically and instantly close the Pressurematic Wing Valve and shut in the well. Any obstruction in the flowline, such as paraffin, that would cause the flowline pressure to *rise*, would also actuate the Pressurematic Valve to closed position.

No springs are employed in the Pressurematic Valve. Its design incorporates the long-established engineering principle of balancing a small diameter piston which is exposed to high pressure (wellhead) against a large diameter piston which is exposed to low pressure (flowline). When this balance is disturbed—in excess of predetermined limits—the pistons move and thus actuate the gate, or stem. This movement is to the closed position only. When the valve closes it can be opened with the handwheel and reset for automatic operation. The handwheel also permits manual operation of the valve for choke changing, etc.

Complete details will gladly be sent on request.

CONVERT your standard Unibolt Wing Valves to PRESSUREMATICS by simply replacing the bonnet assembly with the new Pressurematic unit.

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Looking Ahead in Washington

McGraw-Hill
Washington
Bureau
July 22, 1960

Natural gas producers, pipelines, and distributors hope to have a new gas bill ready for presentation to Congress in January (PW—Jul. 8'60, p18). Representatives of all three industry segments are presently at work on a draft bill to ease federal controls on gas sales at the wellhead.

The timetable calls for the bill to be ready some time after the November elections and before the new 87th Congress meets. As soon as the bill is introduced, if all goes according to plan, a major drive for enactment will be started.

•

A new law allows Federal Power Commission members whose terms expire to remain in office until the Senate approves a successor. Under a bill passed by Congress in its closing preconvention days, and now signed into law by President Eisenhower, former FPC Commissioner William Connole could have stayed in office for perhaps another year. But Connole, whose term ended last month, said he would not continue as a member even if the law was made retroactive to allow him to do so. The statute allows a member whose term expires during one Congress to remain in office until the Senate consents to a successor, although the extension cannot go beyond the close of the first session of the next Congress.

FPC still had one vacancy this week, but it is expected to be filled by an interim appointment. Commission strength was brought to four when Paul A. Sweeney, a Justice Dept. attorney, received a recess appointment by Eisenhower. The nominations of Sweeney and of Thomas J. Donegan to be FPC members have not been acted upon by the Senate. There are strong indications that no action will be taken until next year. If Donegan declines a recess appointment, the White House may have difficulty finding someone to accept the job for what might be a short tenure. But Administration officials were working early this week to bring the commission up to its full complement of five.

•

The Office of Civil & Defense Mobilization is looking at possible decontrol of asphaltic oil imported into Districts I-IV. Requests by four importing oil companies prompted an investigation to decide whether crude and unfinished oils with asphaltic content should be exempted from the imports program. OCDM indicates, however, that any eventual decontrol will not increase the over-all level of imports. Comments will be received by the agency through **Aug. 29.**

•

The Commerce Dept. is standing firm on its policy banning U. S. exports of petroleum products to communist areas. But the government office is dropping its requirement for export licenses on ten categories of oil products.

•

An FPC decision in the Phillips case may come in August, with only three commissioners taking part. Earlier, the commission was expected to delay a decision on Phillips' rates until new members could assume office and familiarize themselves with the complex case, which could establish guides for producer rate regulation. But delays on new members forced the remaining three commissioners to plunge ahead with their work, and now the decision may be ready by next month. Commissioner Sweeney, although now in office, will not take any part in the decision.

BETTER drilling rates in all types of muds: T-8, lime, gyp, and low pH, with varying amounts of oil.

BETTER (lower) barite requirements when substituted for oil in muds.

BETTER hole lubrication, in all types of muds, to reduce pipe sticking.

BETTER bit bearing life **even in high solids muds.**

BETTER geological interpretation and electrical logs; no fluorescence.

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MAGCOBAR PLANNED MUD PROGRAMS make the above statements facts, not claims. In high weight emulsion muds, for example, the Magcobar engineer properly substitutes Bit Lube® for some of the oil to cut drilling costs by reducing the amount of barite required. In a typical well, the oil content of the mud was allowed to drop from 11 to 5 per cent. Bit Lube was added to this 17.8 lb./gal. lime mud with these savings in barite:

	Sacks of barite per day	Cost of barite per day	Cost of Bit Lube per day	Cost of Oil per day	Total Cost per day
Emulsion (2 week average)	177	$409.76	$—0—	$74.03	$483.79
Bit Lube and Emulsion (3 week average)	52	120.38	122.43	8.25	251.06

NET DAILY SAVINGS WITH BIT LUBE: $232.73

Not only does Bit Lube give direct cost savings, but it also offers escape from costly pipe sticking, even in extreme directional holes. Bit Lube lowers the friction coefficient of the mud, to give over-all higher drilling mud performance. These savings can be added to those in the chart.

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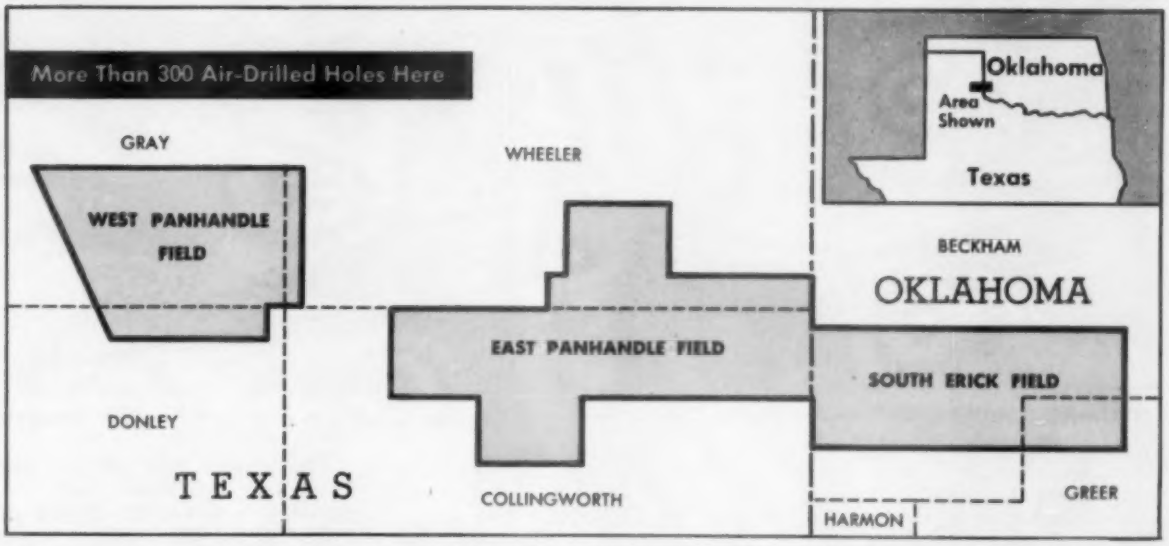


AIR was used as circulating fluid in the bulk of holes drilled since 1957 on El Paso Natural Gas Co. acreage in these fields, as . . .

Air Drilling Scores in Panhandle

One of the most ambitious development drilling programs ever attempted is nearing completion in the Panhandle area of Texas and western Oklahoma.

The program, initiated by El Paso Natural Gas Co. early in 1957, now encompasses a total of 335 holes drilled in the East Panhandle and West Panhandle gas fields of Gray, Wheeler, Collingsworth, and Donley Counties, Tex.; and in the South Erick gas area of Beckham and Greer Counties, Okla.

A rundown by years shows 125 holes drilled during 1957, 127 during 1958, 63 during 1959, and 20 during the first half of 1960. Only 12 additional locations are scheduled for drilling the remainder of 1960, but another 100 holes may be drilled before the program is completed. Spacing has ranged from 160 acres (a half mile between holes) up to 640 acres (1 mi. between holes).

Fewer than 10% of the holes drilled have failed to be commercial gas producers. Seven dry holes were drilled in 1957; 11 in 1958; 9 in 1959; and 5 in the first six months of 1960.

One of the most unusual facets of El Paso Natural's program is the fact that virtually all rotary drilling has been accomplished with air as the circulating medium.

The company has thereby acquired the unique distinction of having drilled more holes with air than all other operators in the Panhandle area combined.

Air drilling was used to speed drilling and to gain other operating advantages in an area suitable to its use.

"Initially," explains Leroy E. Bechtel, El Paso division petroleum engineer in Amarillo, "one of the big reasons we turned to air drilling was because of its intrinsic speed."

The program spelled out by El Paso management late in 1956 called for the completion of 70 Panhandle wells during the first year, with but two company-owned rigs. Since the company had never drilled a hole in the Texas Panhandle prior to 1957, says Bechtel, "this was a task the contemplation of which shocked some of our field people, at first glance." As it developed, however, the company was able to complete almost half again as many wells as were initially scheduled for the first year.

"I don't think it would have been possible without air," says Bechtel.

He adds that air drilling is comparable to running a continuous drillstem test. "With the logs we use, we don't believe we are overlooking anything. As a consequence, we are getting better potentials, and perforating a full gas section without wasting our shots in barren zones above and below."

Another problem overcome with air drilling is that of formation contamination. "While there have been no severe contamination problems in Brown Dolomite completions," observes Bechtel, "it is practically impossible to complete a well with fluid from the Granite Wash."

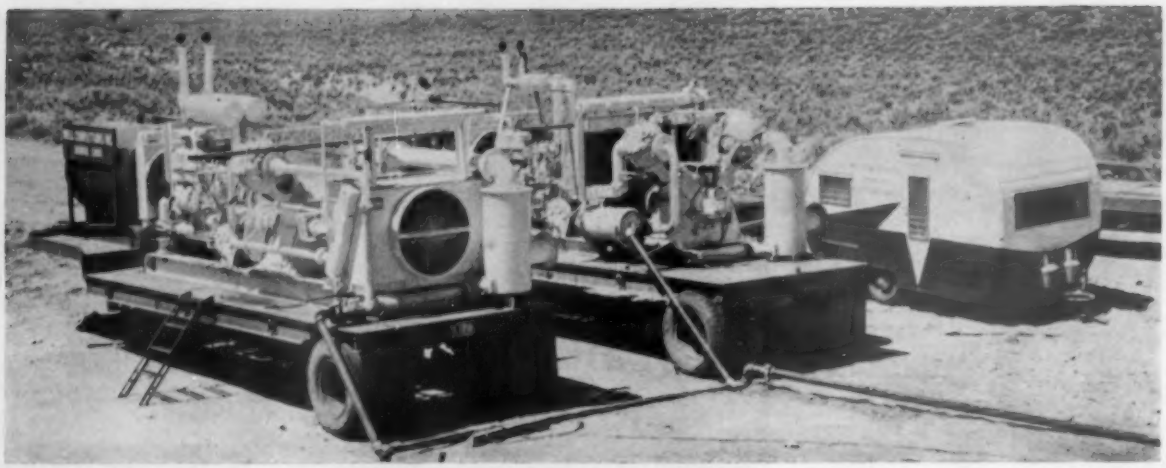
This is because too much fluid is lost to the Granite Wash formation. If the pay face isn't mudded off, he explains, then caving problems are encountered. Prior to the advent of air drilling, nearly all Granite Wash wells were drilled in with cable tools.

Although bit life has been improved somewhat, and mud bills eliminated, cost reduction is not regarded by the company as one of the important aspects of its air drilling program.

Completed well costs with air have averaged about $22,500 per hole, with average depth of 2,000 ft., or $11.25 per ft. of hole drilled. Here's the cost breakdown:

Footage and day work (includes compressor rental)	$7,300
Tubular goods and wellhead	5,070
Well stimulation	4,140
Logging and perforating	1,380
Prorated share of overhead	1,340
Cementing	1,260
Access, location, and cleanup	920
Completion rig (cable tool)	850
Miscellaneous materials	240
Total completed cost	$22,500

"A comparison of our footage costs with those of other operators in the area who have utilized conventional



TORNADO COMPRESSORS, owned by Well Completions, Inc., supply 1.2-million cf/d of air each for the El Paso drilling program.

[fluid rotary and cable tool] drilling methods does not show any considerable advantage for air drilling purely from the standpoint of reduced costs," says Bechtel.

Drilling equipment used by El Paso Natural during its entire development program has consisted of only two rigs—both trailer-mounted portables.

Originally owned and operated by El Paso Natural, both rigs were sold in the spring of 1959 to a drilling contractor. Since then, the program has been carried on with only one of the rigs.

All segments of the rig now in use can be moved in six or fewer truck loads over lease roads, where road width and weight limitations are not prohibiting factors. Up to eight trips may be required for over-the-highway transport.

Two compressors have been used for nearly all drilling operations. They provide a combined air deliverability of about 2-million cf/d of air at working pressures up to 95 psig., although a booster compressor has been required for mist drilling in a dozen or so wells where unusually large fluid volumes required lifting.

Working pressure up to 1,500 psig. and air deliverability of about 1.2-million cf/d are provided by the booster.

Wells completed from the Brown Dolomite (about 95% of the completions) are bottomed at average depths of approximately 2,000 ft. Average drilling time—from rig-up to teardown—is only 48 hours.

In many instances, over-the-hole time is determined solely by required waiting-on-cement periods for surface cement. The company has come to expect a new well in only two days under normal operating conditions.

First-day footage rates now regularly exceed 1,000 ft. Picked at random from El Paso's drilling reports, these 24-hours-from-below-surface-pipe depths are typical: 1,160 ft., 1,293 ft., 1,380 ft., 1,272 ft.

Cable tools regularly are brought in to bail out and/or swab in the well after total depth is reached and pay section perforated. The cable tools then are used to run tubing and for routine completion chores.

Experience has shown that air drilling is feasible under virtually all downhole conditions encountered in the Panhandle area.

At the beginning of its development program, for example, the company used a modified shot-hole rig or "topping unit" equipped with a 6-in. centrifugal pump for drilling with fluid through the unconsolidated Glorieta (Upper Permian) sand.

(In some areas of the Panhandle, this sand is encountered very near the surface and may continue for several hundred feet. Sloughing and caving is commonly encountered throughout the section.)

Initially, the topping unit was used to speed up the over-all operation. The topping unit set surface pipe ahead of the two rotaries in order to eliminate waiting-on-cement time on surface pipe.

After drilling some 85 wells to surface casing point with the modified shot-hole rig, El Paso attempted mist drilling. Performance was so good that this method has been used exclusively for the past 2½ years.

The company now follows a policy of setting surface pipe 50 ft. into the Permian salt section—regardless of depth—to attain water shutoff.

Thus, casing is landed at about 600 ft. in the east portion of the field and at about 900 ft. in the west portion.

Throughout much of the Panhandle field, the Glorieta sand is underlain by a section of salt and anhydrite of variable thickness, under this, in turn, is a section of friable red shale (Lower Clear Fork group) known locally as the Red Cave. Underlying the Red Cave, but falling into the Wichita Group, is the Panhandle, or Big Lime.

Balling, sloughing, and tight spots caused by mud rings have been controlled effectively through a combination of mist drilling, deflocculants, and foaming agents.

El Paso normally drills out from under surface pipe with mist, then dries up the hole on reaching the top of the Panhandle Lime section at an average depth of some 1,400 ft. Mist drilling is required to take the hole through the Red Cave section which, typical of most "weeping" zones, produces just enough formation water to cause cuttings to ball about the bit and to form "mud rings" at the pipe joints.

El Paso's program so far has produced only 11 holes which required mudding up. One or both of these conditions have been responsible in each instance:

- Surface pipe was not set deep enough to provide water shutoff. This was a factor during the early months of the program, but has not been of concern since company engineers have familiarized themselves with the area.
- The Red Cave section could not be dried up after going through it into the Panhandle Lime, and balling and mud rings continued to be problems. This has happened only rarely in the past, and now apparently has been alleviated altogether with improved mist-drilling techniques and better chemicals.

Although the company recently be-

gan experimenting with tubingless completions, most of its Panhandle wells have been completed conventionally.

Surface pipe of 7-in. or 8⅝-in. O.D. normally has been landed in the salt section and cemented to surface. In most of the wells, 5½-in. production string has been run in holes cased with 8⅝-in. surface pipe, and 4½-in. production string in holes cased with 7-in. surface pipe. No intermediate casing or liners have been run in any of the wells.

In all wells completed from the Brown Dolomite, production pipe has been set to total depth and selectively perforated in one or more intervals opposite the pay section. Net pay has averaged 35 ft.

The dozen or so completions from the Granite Wash have been made from open hole below 7-in. production string run inside 9⅝-in. surface pipe. These wells have not been fractured.

Some 40 wells, all in the West Panhandle field, have been completed from both the Brown Dolomite and the Granite Wash. Since the Texas Railroad Commission permits commingling of produced gas from the two formations, production has been through the same string in all instances.

A siphon string of 1¼-in. black line pipe has been run in roughly 95% of all conventionally completed wells to carry produced fluids—mostly salt water—to the surface for disposal. Gas is produced through the annular space in all such wells.

Despite the siphon strings, some wells require periodic purging. For this purpose, El Paso has successfully placed concentrated detergents down the siphon strings—a method developed by the Bureau of Mines.

No siphon string is used in the tubingless completions. But the company anticipates no difficulty in periodic purging of these wells.

So far, only two tubingless completions have been attempted, and neither has yet been placed on production.

The company has set 7-in. surface pipe and 2⅞-in. production string in these wells. Additional tubingless completions are planned if no important production problems occur.

El Paso's wells have averaged more than 3¼-million cf/d, on potentials.

The average well during the first two years of the program gauged 3,340,000 cf/d, following stimulation.

Average potentials of wells completed in 1959 and the first six months of 1960 were slightly lower.

The best well yet completed by El Paso in the Texas Panhandle flowed at the rate of 16-million cf/d from the Brown Dolomite. This well, No. 3 Bergman, is located in East Panhandle field, a few miles southwest of Shamrock townsite.

Neither of the company's two tubingless completions have yet been gauged for Railroad Commission filing, but estimates on the basis of production tests are in the neighborhood of 4-million cf/d.

All wells with the exception of those completed from open hole section in the Granite Wash have been stimulated.

Bechtel says increases in open flow potential following currently used fracture treatments have been on the order of eight times natural flow.

One instance is reported in which a well that gauged a natural flow of only 40,000 cf/d was fractured into a well making 2¼-million cf/d. This, however, is not a common occurence.

Experiments have been made with various size fracture treatments, with the result that lower volumes and injection rates have been found most suitable.

Early in its program, El Paso experimented with treatments involving volumes of 50,000 gal. of diesel oil and 50,000 lb. of sand, with injection rates on the order of 60 bbl. per minute. Ball sealers were used to obtain selectivity. High-volume water treatments also were tried, but production increases were not so good, and clean-ups were more difficult.

Usual stimulation now consists of a 250-gal. spearhead of 15%, nonemulsifying acid, followed with a fracture treatment of 10,000 gal. of No. 2 diesel oil carrying 1 lb. of sand per gal. Injection rates are 20 to 25 bbl. per minute.

Treatment of the two recently completed tubingless wells involved approximately the same volume and sand-oil ratio, but injection rates were necessarily reduced to 10 to 11 bbl. per minute.

Gulf Performs Long Squeeze

Gulf Oil Corp. has successfully squeezed a 230-ft. interval in a Texas well by using a new technique involving a low-water-loss cement.

Gulf reports that this was one of the longest squeeze operations ever to be performed. The test was Gulf's No. 7 C. W. Ory, in Wasson field, near Denver City, Yoakum County, Tex. The 230-ft. interval included 11 sets of perforations.

Gulf's technique uses a new high-gel cement with a high content of clay and special additives to improve its set performance. Full details of the development have not yet been released, due to pending patent applications in foreign countries.

However, Gulf says the cement is held on the bottom of the well for as long as four to five hours. Special retarders, and a water-loss additive developed by Dowell division of Dow Chemical Co., were used in the cement. No cement was left in the casing to be drilled out after the squeeze operation had been performed. This resulted in a great saving of time, money, and labor, the company adds.

Sand Screen Uses Sand to Stop Sand

Sand is its own best filter. This is the theory behind the development of an unusual downhole sand screen offered by Halliburton Co.

The pre-formed screen, marketed as the Halliburton Sand Screen, is essentially an outer screen of consolidated sand held in place around a mandrel of perforated or slotted tubing by a thermo-setting resin.

The screens normally are run down casing on the end of a tubing string and hung opposite the perforated interval. Standard API fittings are provided on all mandrels.

The Halliburton screen is unique in that it employs a sand face as the direct screening medium.

No outer covering of slotted metal is required.

Because of this greater exposed surface flow area, says Halliburton staff engineer H. J. Ayres, the formation sand is "diffused over the screen's entire surface, rather than being concentrated at restricted points of entry."

Halliburton considers sand the ideal exclusion material because it acts as a natural buffer, is inert, and is entirely compatible with all produced fluids and downhole conditions.

About 660 ft. of the screens have been run so far in 30 different wells.

The first screen was run last February in South Louisiana's Bayou Choctaw (Miocene sand) field.

Since then, most of the applications have been in the coastal area of South Texas, Louisiana, and Mississippi, though successful applications also have been made in North Texas and Wyoming.

One early application in Bayou Choctaw field involved the placement of three 6-ft. liners opposite a sand section topped at about 7,700 ft.

Prior to running the screen, the well made sand in such quantities that commercial oil production was impossible.

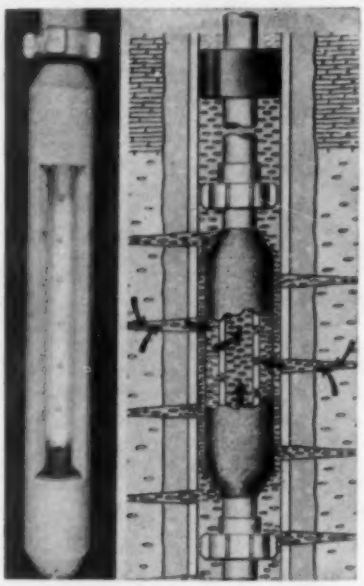
During the four months the screen has been in place, the well has regularly produced 75 b/d of oil without appreciable sand production.

Two factors exert primary influence on screen life: Plugging or bridging to the extent that fluid transmissibility is ineffectual; and cutting of the screen by the abrasive action of sand-laden fluids.

The first of these is considered to be more significant.

"Produced sand from nonconsolidated formations," says Ayres, "normally can be expected to fill the annular space (between liner and casing) in a matter of hours, thus effectively dispersing the fluid flow over a wide area and substantially reducing wear on the screen itself.

"The build-up of minute particles within the pore space of the screens is, on the other hand, a gradual process, which ultimately can result only in greatly reduced fluid flow into the tubing string."



CUTAWAY MODEL of screen shows how sand is bonded to tubing as screening medium. Installation is shown at right.

In making the screens, quality control is maintained by laboratory analysis of each batch of resin-sand slurry.

Sand and liquid resin are mixed in a ribbon-type mixer, then packed around the mandrel, which has been enclosed within a mold.

The entire assembly is placed in a thermal hood and subjected to heat for a predetermined period.

Samples taken from each slurry are placed in small cubical molds and cured along with the screen assemblies. After curing, the samples are taken to Halliburton's nearby laboratory, where they are tested for tensile, shear, and compressive strengths.

The consolidated sand mixture normally has a compressive strength of 3,000 to 5,000 psi., a shear strength of 1,000 psi, or more, and a tensile strength exceeding 800 psi.

Individual screens also are shop-tested for uniform permeability during inspection procedures. Normal permeability of the consolidated sand is as much as 70 darcies and porosity is 26%.

The use of sand screens is particularly important in such areas as the Gulf Coast, where workover time has become a major cost item.

Example: One major company now has four workover rigs devoted exclusively to sand clean-out work in one field alone.

In addition to reducing sand production to a minimum, the Halliburton screen is expected to facilitate washovers when pulling becomes necessary, since the screen has no exterior metal housing.

The only metal that must be drilled in recovering the screen is the aluminum centralizer.

The Halliburton screens are regularly stocked in 6-ft. lengths and in three diameters to facilitate use in the more common production strings:

- For 7-in. casing, the screens are supplied in 5.75-in. OD with 2⅞-in. OD mandrels.
- For 5½-in. casing, the screens are supplied in 3.9-in. OD with 2⅜-in. mandrels.
- For 4½-in. casing, the screens are supplied in 3.5-in. OD with 1.9-in. mandrels.

Introduction of the screens climaxed three years of extensive field and laboratory research.

One major hurdle was the development of techniques and materials for sand consolidation and bonding to pipe.

"The properties we sought and found in a bonding material," says Ayres, "were optimum mechanical strength combined with chemical resistance.

Before the 6-ft. screen length was selected as the optimum, Halliburton tabulated and plotted the thicknesses of 731 producing zones in Louisiana and Texas coastal areas.

One 6-ft. screen covers producing intervals of 5 ft. or less, while multiple lengths may be coupled for thicker sections.

Selection of sand grades used followed a detailed study of 83 Gulf Coast formations in which severe sanding conditions were encountered.

A 20/40-mesh, round Ottawa sand (similar to fracturing sand) was chosen for the standard Halliburton screen because it combines optimum porosity and permeability with maximum effectiveness.

Mixtures with more extreme size gradation are available on order.

"Oilwell" Century Pumping Units improve counterbalancing with less dead weight

This close-up view of an "Oilwell" Type "G" crank shows how crank weights are placed where they do the most good.

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In operation . . . these improvements increase the precision with which counterbalancing is achieved, by providing a longer weight-adjustment range on the calibrated crank. In addition, lighter crank weights lower the load and reduce normal wear on gear-box bearings.

This improved arrangement also permits the use of longer wrist pins, equipped for hydraulic assisted removal, so that stroke lengths can be adjusted easily and safely. Longer cranks provide an additional wrist-pin hole.

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ACTIVITY on Lake Erie is concentrated on the east and west ends as . . .

Lake Drilling Perks Up

Drilling in Lake Erie, off to a slow start this year, now appears to be picking up speed, with most of the push supplied by the bigger companies.

Some 45 drilling applications have been filed so far with the Ontario Fuel Board.

But whether the year's final total will reach or exceed the number of completions last year is still questionable.

A total of 75 holes were drilled in 1959 and 53 in 1958, according to the Fuel Board.

Fewer operators are active on the lake so far this year than in past years. Some of the smaller companies active in recent years are holding back this year with no plans for lake drilling.

Most of the current drive in the lake is coming from three companies —Consolidated West Petroleum, Place Oil & Gas, and Long Point Gas & Oil.

These three companies, at last report, had completed 11 gas wells this year, and another was being tested.

A bright note: One of the biggest gas wells in the lake was completed recently.

Long Point Gas & Oil early last month completed a well for a potential of 6.1-million cf/d. It is located in the Port Maitland area off Haldimand County, ½ mi. from the company's No. 5 well, which was completed last year for 5-million cf/d.

Lake activity this year is expected to be almost evenly split between the east and west ends, though the east is generally expected to be the busiest area.

Most of the drilling on the east end of the lake, off Norfolk, Haldimand, and Welland Counties, is expected to take place off Haldimand county.

Some 13 holes were drilled in the lake off Haldimand last year, making it third in total number of holes drilled. That many and perhaps more are expected this year.

The Kent County area on the west end of the lake led last year with 32 holes drilled, and Norfolk County offshore was second with 15 holes.

Drilling plans announced so far indicate that the area off Kent County probably will have only about half as many holes drilled this year as last.

The Essex County area, it is predicted, will almost equal last year's total of 11 holes.

The west end of the lake will be the scene of the only oil search in the offshore drilling.

Place Oil & Gas last year completed the lake's only oil well, about 1,000 ft. offshore from Colchester.

An offset try proved unsuccessful.

The company plans at least four more tries in the area this year, and has two drilling platforms at work.

There will be no drilling this year in Lake Huron, Lake St. Clair, or the St. Clair River.

Charges of pollution last year resulted in a ban on drilling in these waters.

What's New / IN EXPLORATION, DRILLING, PRODUCTION

Two applications for development of Alberta's Athabasca tar sands—one of them proposing in situ combustion—are scheduled for a hearing on Aug. 17.

The Oil & Gas Conservation Board said Pan American Petroleum Corp. seeks permission to conduct in situ combustion experiments in the tar sands in wells in section 32-85-8w4 and section 5-86-8w4.

The other applicant, Cities Service Athabasca Inc., on behalf of itself, Imperial Oil, Richfield Oil, and Royalite Oil, seeks continuation of its research and testing program aimed at developing the tar sands in the Mildred Ruth Lakes area (PW—Jan.15 '60,p9).

•

Texaco Inc. was high bidder at last week's sale of leases on University of Texas land, offering $826,000 for a total of 13,826 acres.

The company's highest bid was $85,000 for a 160-acre tract in Crane County. In addition, it bid $85,000 and $55,000 for two 1,922-acre drilling blocks in Winkler County. Other tracts bid on by Texaco are in Andrews and Culberson Counties.

The largest single bid at the sale was made by Texas Gulf Producing Co., which bid $210,000 and $195,000 for the 160-acre tracts in Crane County.

High bids on approximately 40,000 acres offered totaled $2,666,000.

•

Mobil Oil of Canada, Ltd., has started a marine seismic survey of a 150-mi. stretch of water between Halifax and Sable Island.

The survey, which will later move on to the island itself, is to map undersea structures. It supplements an aeromagnetic survey carried out last summer.

•

Pan American Petroleum Corp. bought 330,240 acres in northern Alberta at the government's oil and gas rights sale last week.

The reservations are as follows: Area No. 1,746, covering 92,160 acres, for $2,501; Area No. 1,748, 76,800 acres, for $3,840; Area No. 1,749, 64,640 acres, $6,464; and Area No. 1,750, 96,640 acres, $9,664.

British American Oil Co. paid $1,038 for Area No. 1,747, covering 18,880 acres.

The only other buyer was Empire State Oil Co., which paid $740 for Area No. 1,743, covering 13,600 acres.

•

Unitized waterflood programs in the 3,800-ft. and 4,300-ft. reservoirs in Hull & Silk-Sikes pool, Archer County, Tex., should make possible the recovery of an additional 17-million bbl. of oil.

The estimate was made by Blackwell Oil & Gas Co., which will be the operator, in seeking approval for the project from the Railroad Commission.

On Jan. 1, a Blackwell spokesman said, remaining primary production was estimated at 585,000 bbl. for the larger reservoir, and at 235,000 bbl. for the smaller. Total cost of the operation was estimated at $5.2-million.

•

A term mineral lease on state land can not be extended by unitization beyond its principal term of 25 years, says Texas Attorney General Will Wilson.

Wilson's opinion concerned an unspecified tract in Redfish Bay Pool, Nueces County.

The original lease was drawn in 1940 and suspended during World War II. A water injection program is proposed to extend production to 1981.

•

Continental Oil Co. has completed a $300,000 improvement and modernization project at its KMA natural gasoline plant, near Electra, Tex.

This included replacement of an outdated absorption unit with a refrigeration-type natural gasoline processing plant, similar to the one installed on its Ramsey lease near Pecos in 1959. The plant has a capacity of 7.5-million cf/d.

•

Drilling activity in Illinois slumped 4% in the first six months of 1960

Welex Enters Ultrasonic Testing

Welex, Inc., moved this week into the field of ultrasonic inspection of tubular goods and refinery equipment.

The Halliburton Co. subsidiary bought Electro-Circuits, Inc., from Automation Industries. Using the acquired firm as a nucleus, Welex then formed International Inspection, Inc., or Triple-Eye, for short.

Ultrasonic testing has had wide application in such fields as the aircraft industry, but hasn't been used extensively in the oil industry.

The deal with Automation calls for it to extend licenses to Welex on certain patents for use on a world-wide basis in the oil and gas industry.

Ultrasonic testing, which utilizes ultra high-frequency sound, will have no effect on the material being tested, according to H. K. McArthur, executive vice-president of Triple-Eye.

Using ultrasonic means, he said, the thickness of materials can be measured to .005 of an inch to show individual pitting, erosion, and other flaw conditions.

McArthur said the company will offer its services on a fee basis for refinery equipment, and that tubular goods probably will be inspected "at so much a joint."

Offices for the new firm to handle the testing are initially being set up in Ft. Worth and Houston, Tex., and in Pasadena, Calif.

In addition to McArthur, officers of the new firm are Ray O. Shaffer, chairman; J. Randolph Richards, president; and T. G. Bogle, vice-president of sales and advertising. Shaffer is also Welex president, and the others are Welex men, except for Richards, a former Automation president.

In the transaction, Automation received $102,000 in cash and will get a royalty of 5% maximum and 2.5% minimum on the ultrasonic inspection sales for the next ten years.

compared with the same period of 1959.

According to the Illinois State Geological Survey, 922 wells were completed in the first half of 1960, compared to 961 last year.

One new pool was discovered in the state in June—Rushville Northwest in Schuyler County. A total of 155 tests were completed in the month, including 60 oil wells and one gas well —a success ratio of 39%.

•

The first sextuple completion in Texas has been approved by the Railroad Commission.

The gas well, Sunray Mid-Continent Oil Co.'s No. 6 Graves, is the north La Ward field, Jackson county.

•

Plans to completely automate well and lease producing facilities at Alberta's Virginia Hills oil pool are under way. Hudson's Bay Oil & Gas Co., operator, estimates that automatic facilities will eventually handle production from about 50 oil wells, and will cost $478,000.

•

Oil Center Tool Co. has published a new booklet entitled "Prospective Oil & Gas Areas of the United States."

The company feels the booklet, edited by Arthur Troutman, adds to its belief that the U.S. will remain a prime production sector for many years to come.

•

Sinclair Oil & Gas Co. was high bidder with $326 an acre at a July 6 lease sale in Wyoming. The 82-acre tract on Wertz Dome, Carbon County, was within several known structures.

Second highest bid came from Kewanee Oil, with a bonus of $57 an acre for a tract in the Raven Creek pool, Campbell County.

Bids were submitted on 65 tracts of the 91-tract offering.

•

Drilling Highlights

East Texas—Pure Oil Co. and Texaco Inc. No. 1 J. G. Flatt Unit, V. B. Hubbard survey, Van Zandt County, was completed for 242 b/d of 47-gravity oil through 24/64-in. choke and perforations at 10,676-82 ft. in the Cotton Valley (upper Jurassic). The wildcat is located 18 mi. south of Smackover (Jurassic) gas production 1 mi. east of Fruitvale townsite.

In Smith County, Texaco Inc. No. 1 Theotis Warren Unit, John H. Brock survey, was completed for 28-million cf/d of gas plus 69 bbl. of 69-gravity condensate per million through perforations at 5,910-18 ft. and 5,924-30 ft. in the Paluxy. The discovery is 1 mi. northwest of and across a fault from Chapel Hill multi-pay field, where the Paluxy is one pay zone.

Wyoming—Shell Oil Co. No. 14-12 Unit, section 12-3n-3e, Fremont County, flowed gas on drillstem tests at the rate of 1.8-million cf/d from 3,299-370 ft. in the Wind River, and at the rate of 1.7-million cf/d from 3,841-98 ft. in the Fort Union. The wildcat is 13 mi. east of oil production at Pilot Butte and 40 mi. west of a shut-in gas well.

North Dakota—The California Co. No. 1 Herdt-Bank, section 6-158n-80w, McHenry County, was completed on the pump for 96 b/d of oil and 14 b/d of water from open hole at 4,201-13 ft. in the Mission Canyon (Mississippian). The well, the first success in the county, is 6 mi. east of Glenburn field, Renville County.

New Mexico—Ohio Oil Co. No. 1 Lea Unit, section 12-20s-34e, Lea County, was completed for 516 b/d of 55-gravity oil through 8/64-in. choke and perforations at 14,347-75 ft. and 14,389-93 ft. in the Devonian. The discovery is 2½ mi. southwest of the shallow Pearl Queen sand field.

Montana—Sumatra Oil Co. No. 2 Stensvad, section 35-11n-30e, Musselshell County, flowed 277 b/d of oil through ¼-in. choke and perforations at 4,594-604 ft. in the Tyler sand. Testing continues. The wildcat is 3 mi. southwest of Ivanhoe field.

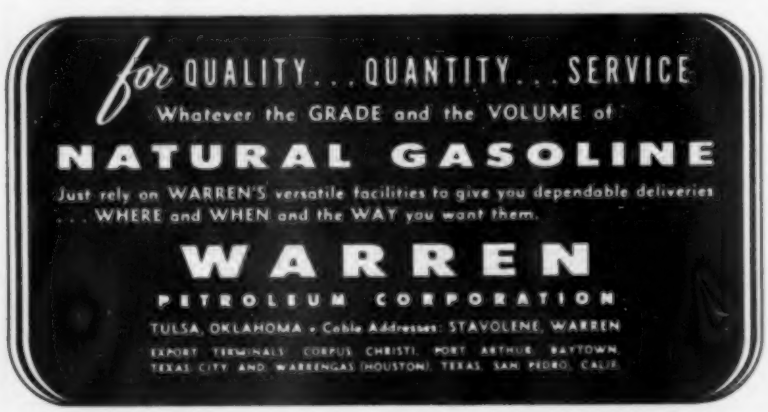
Kansas—Helmerich & Payne No. 1-A Reimer, section 35-28s-34w, Haskell County, was completed as a new pay opener for 490 b/d of oil through ¾-in. choke and perforations at 4,674-92 ft. in the Marmaton. The well is ½ mi. southwest of the one-well Southeast Eubank (Lansing) pool.

Nebraska—Baumgartner Oil Co. and Falcon Seaboard Drilling Co. No. 1-a Willson Ranch, section 8-17n-52w, Morrill County, was completed on the pump for 512 b/d of oil through perforations at 5,110-12 ft. in the J sand. The discovery is 1¾ mi. northeast of Willson Ranch field, Banner County.

Also in Morrill County, British-American Oil Producing Co. No. 1-H Nebraska, section 16-17n-52w, was completed on the pump for 262 b/d of oil through perforations at 5,230-34 ft. in the J sand. The well is 1 mi. northwest of the one-well Baumgartner field.

Colorado—Delhi-Taylor Oil Corp. No. 1 Cowell, section 26-2s-60w, Adams County, recovered 6-115 ft. of oil, 152 ft. of oil- and gas-cut mud, and 30 ft. of water on 1-hour drillstem test at 6,295-315 ft. in the J sand. The prospect is 3 mi. northeast of Busy Bee field.

Alberta—Omega Natural Gas No. 7-6 Omega Enchant, lsd 7-6-14-17w4, has been triply completed: for 2-million cf/d of gas through ½-in. choke and perforations at 2,524-54 ft. in the First Bow Island sandstone; for 5.3-million cf/d through ½-in. choke and perforations at 2,640-70 ft. in the Second Bow Island sandstone; and for 1.2-million cf/d through ½-in. choke and perforations at 2,910-70 ft. in the Blairmore. The wildcat is 2¾ mi. west of Enchant field.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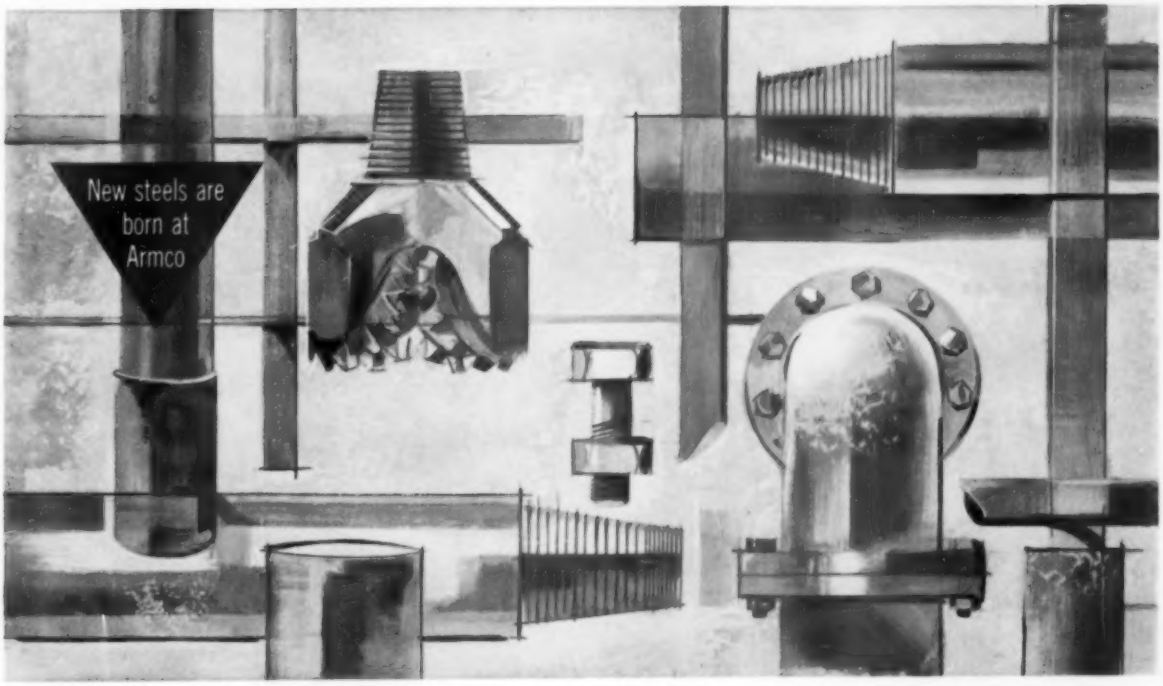

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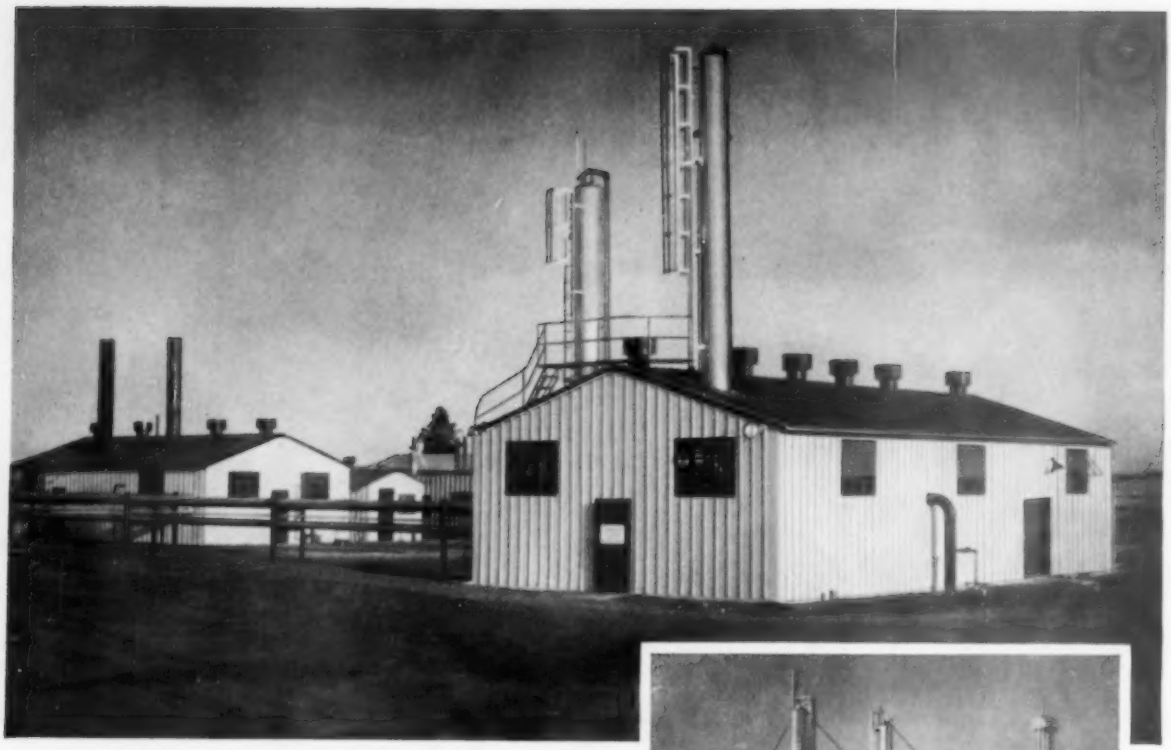

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"See Sweet's Industrial Construction File – Section 8-B"

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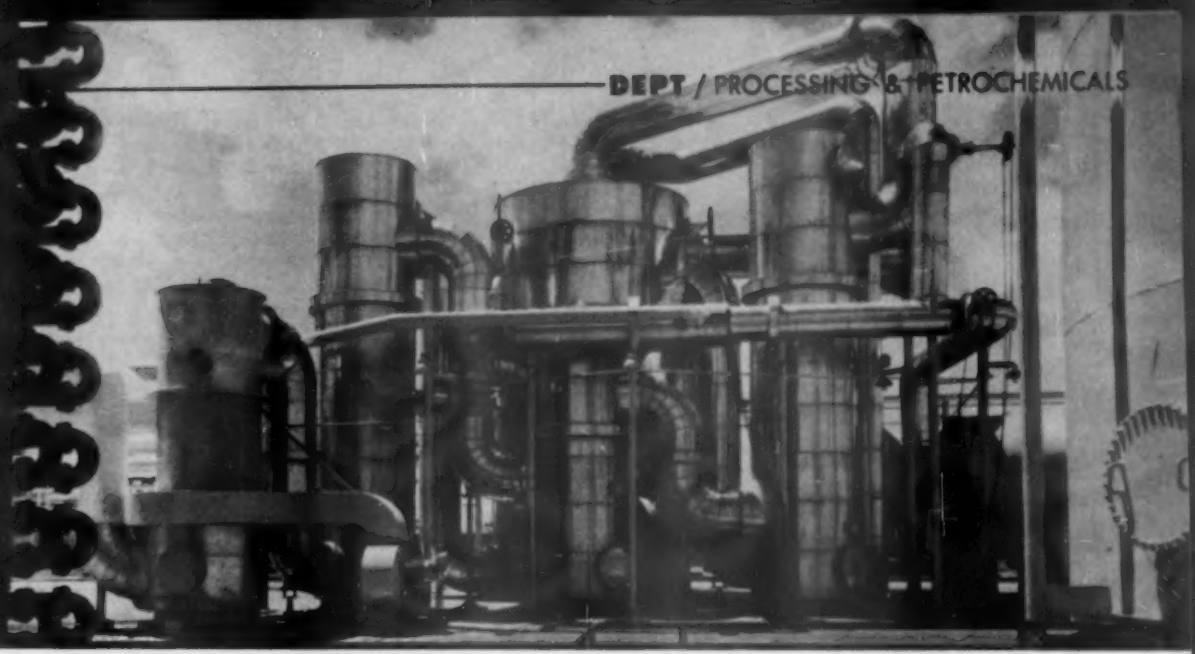


SULFURIC ACID PLANT at the Shell refinery at Geelong, 45 mi. from Melbourne, will be joined by others now that . . .

Australian Petrochemicals Are Booming

The petrochemical industry in Australia, which started only about five years ago, is now entering a phase of intense activity.

The bulk of raw materials for petrochemical conversion is produced in four large refineries, which are Australian subsidiaries of British Petroleum, Caltex, Shell, and Standard Vacuum. Smaller refineries also contribute certain products.

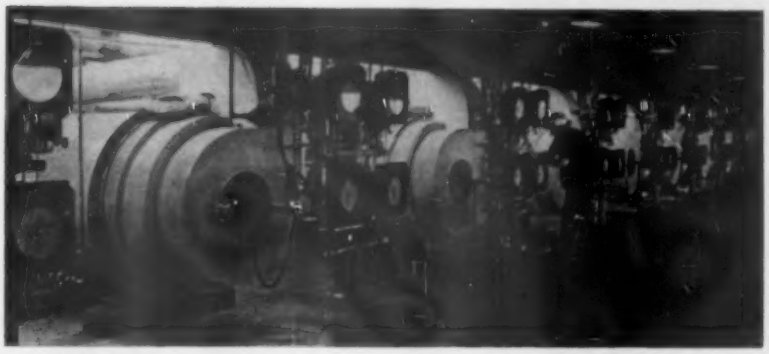
Principal characteristic of the Australian petrochemical industry: an extraordinary complexity of intertwined interests of the various companies involved.

Most factories now operating or under construction are joint ventures of American, Australian, and British companies in the petroleum and the chemical fields. Likewise, the construction companies that engineer and build these plants are joint enterprises, involving American firms such as Bechtel Corp. and Fluor-Utah Joint Venture; British companies such as Geo. Wimpey & Co., Ltd., of London; and the Australian McDonald Constructions Pty., Ltd.

There are five large petrochemical ventures under construction at present, at an estimated cost of about $112-million:

The Altona project, near Melbourne (Victoria), will process raw materials from the Standard-Vacuum refinery. It consists of four plants:

• Styrene—both monomer and high-impact polystyrene—ethylene dichloride, caustic soda, and chlorine will be manufactured in a factory owned jointly by Dow Chemical International and Colonial Sugar Refining Chemicals Pty., Ltd. This plant will receive its ethylene from the Stanvac refinery. It will supply intermediate chemicals, such as styrene and ethylene dichloride, to a synthetic rubber plant and to a new B. F. Goodrich plant.



CARBON BLACK is made in this plant adjacent to Stanvac's Altona refinery.

• Rubber-base products and polyvinyl chloride plastics, ranging from floor tiles to raincoats and upholstery fabrics, will be made in a new plant of B. F. Goodrich-CSR Chemicals Pty., Ltd. Its raw materials will be obtained from various sources among the new group of factories.

• Styrene-butadiene rubber (SBR) will be processed in the new factory of Australia Synthetic Rubber Co., Ltd., owned jointly by Stanvac and Goodyear Tire & Rubber Co. (Australia), Ltd.

• Polyethylene will be produced at the initial rate of 15-million lb. a year—with plenty of room for expansion—in the new plant of Union Carbide Australia, Ltd. Its ethylene will come directly from the Stanvac refinery.

Australian Carbon Black Pty., Ltd., has a plant adjacent to the Stanvac Altona refinery that has been in operation for some time. Here, heavy residual oil from the refinery is being cracked in specially designed furnaces (picture, above) to produce high-quality carbon black at the rate of 25-million lb. a year.

The plant of Shell Chemical (Australia) Pty., Ltd., at Geelong, Victoria, will be expanded.

This plant will specialize in the

production of alkylated aromatics, used for detergents. Shell's Geelong plant has been in operation since November, 1958, making sulfuric acid (picture, page 31).

Two plants are being constructed near Clyde, New South Wales, as joint ventures of Shell Chemical Co. and Imperial Chemical Industries of Australia & New Zealand, Ltd.

• One plant will make ethylene, which will be piped to an existing ICI plant near Botany—a distance of 12 mi.—for the manufacture of polyethylene.

• Another plant will produce epoxy resins. One of the raw materials required, diphenylolpropane, will come from a nearby Timbrol Co. plant.

At Silverwater, N.S.W., Australian Petrochemicals Pty., Ltd., will be a joint undertaking of Petroleum & Chemical Corp. (Australia), Ltd., and Monsanto Chemical Co.

This new factory will produce styrene monomer, which will be processed further in Monsanto factories already in operation. This material used to be imported.

Last of the new plants will be one for Commercial Solvents Pty., Ltd., another affiliate of Petroleum & Chemical Corp. (Australia), Ltd.

It will use as its raw materials the aromatics—benzene, toluene, and xylene—that will be produced in a new Udex plant of Bitumen & Oil Refineries (Australia), Ltd., at Matraville, N.S.W.

The great expansion of the Australian petrochemical industry is due to conditions that have arisen as a result of the last war, according to the Petroleum Information Bureau of Australia.

Among these conditions are:

• The technological skills acquired by Australians during the war;

• The great increase of population, through planned immigration;

• The decision of the world petroleum industry to refine close to markets rather than close to oil fields;

• Most of all, the conviction held by large overseas industrial groups that Australia is a country on the upgrade, with a high standard of living and a stable political system, and therefore a suitable country in which to invest.

Modified Nozzle Can Burn Heavier Fuel

A new type of fuel-injection nozzle may eventually make it possible to burn heavier fuel in locomotive diesel engines.

Railroads are constantly looking for ways to reduce fuel costs. One possibility appears to be the use of heavier, cheaper fuels. Residual oils that could be burned as locomotive boiler fuel, would, of course, be an ideal solution.

So far, however, the use of a residual oil has not been found commercially practical, even with the new nozzle, because of maintenance problems.

The Electro-Motive division of General Motors Corp., one of the main suppliers of diesel locomotives, points out that, if the sulfur content of the fuel goes above 1%, the savings in fuel cost would probably be offset by increased maintenance costs.

And when the more-expensive low-sulfur fuel is specified, the saving is insignificant.

Railroads have experimented with a blend of 80% railroad diesel fuel and 20% low-sulfur residual fuel. They can burn that blend without difficulty with the new nozzle, but, says one oil man, "it's hardly worth the bother, now that the spread between diesel and resid prices is so small."

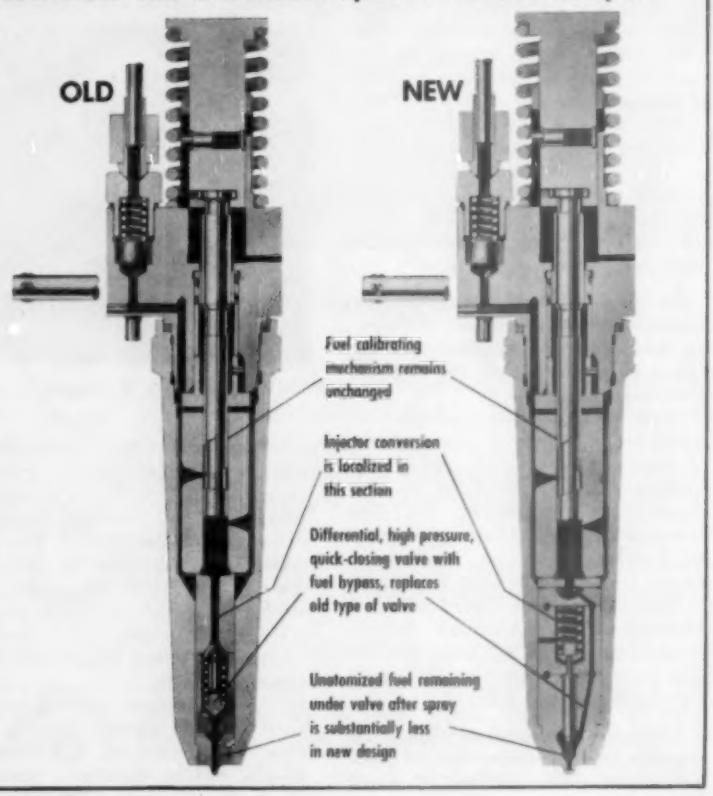
Meanwhile, the new nozzle is being used by railroads to cut down the consumption of diesel fuel.

Walter J. Gewinner, assistant to the chief engineer of American Bosch Arma Corp., the company that developed the new nozzle, described the new nozzle at the recent Oil & Gas Power Conference of the American Society of Mechanical Engineers, in Kansas City, Mo.

Gewinner reported that in all types of railroad services—switchers as well as road locomotives—the new nozzle was responsible for an over-all average fuel saving of 4%. This means a potential annual saving of over $8-million for U.S. railroads.

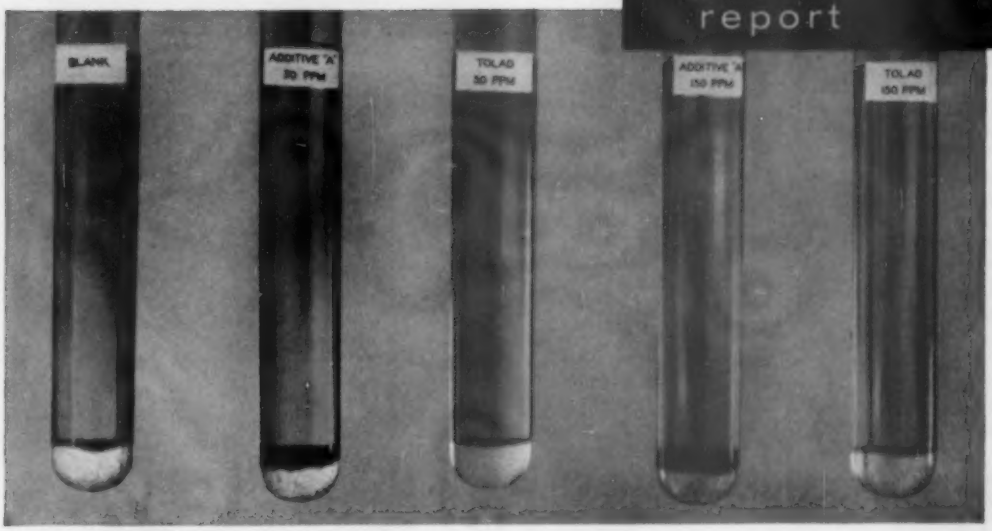
Electro-Motive has been using the new nozzle design commercially for about a year. Some 250 to 300 of its

How New and Old Diesel Injection Nozzles Compare


OLD
NEW
Fuel calibrating mechanism remains unchanged
Injector conversion is localized in this section
Differential, high pressure, quick-closing valve with fuel bypass, replaces old type of valve
Unatomized fuel remaining under valve after spray is substantially less in new design

another

TRETOLITE SERVICE report



TOLAD* *Fuel Additive maintains maximum water tolerance*

Compare the quantities of sludge in the test tubes. The TOLAD-treated fuel samples show much less sludge than the samples treated with a well-known competitive additive.

In the Tretolite Company research laboratories TOLAD Fuel Additives are continually compared with other commercial fuel additives. In test after test, fuels treated with TOLAD have had superior water tolerance.

WHY IS WATER TOLERANCE IMPORTANT?

When agitated, No. 2 fuel oils and diesel fuels form sludge if they contain water and insoluble residue. Some additives actually impair water tolerance.

HOW DO FUEL ADDITIVES AFFECT WATER TOLERANCE?

Additives which are primarily dispersants allow insoluble residue to form freely, but disperse it throughout the fuel. However, they also disperse any water which the fuel may contain, thus promoting emulsification, and eventually, sludge formation.

WHY DO TOLAD ADDITIVES MAINTAIN MAXIMUM WATER TOLERANCE?

TOLAD additives are primarily *inhibitors.* The normal water tolerance of the fuel is not impaired, and the residue problem is corrected by inhibition, rather than dispersion.

The use of TOLAD additives enhances marketability, and practically eliminates burner-tip fouling and filter plugging. In diesel fuel injection systems, TOLAD treatment prevents fouling, increases nozzle life.

In commercial application, TOLAD *has provided these advantages at costs under those of the additives it replaced.*

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locomotives either have the new nozzle or are being converted to it now.

The principle of the new nozzle is to eliminate the long dribble of unatomized fuel after the end of the spray.

In American Bosch's laboratory, Gewinner told the ASME meeting, the dribble could be traced to the slow seating of the check valve in the injector tip, and to the relatively large volume of fuel trapped between that valve and the spray holes (diagram, page 32). This fuel becomes coked, and soon causes uneven, faulty fuel injection through the minute spray holes of the nozzle. This dribbling and coking are particularly objectionable when a heavy oil is used.

In the new design, the rate of pressure drop at the end of the injection is speeded up. There is a sharp cutoff, and dribble is eliminated.

Gewinner indicated that the opening pressure is raised in the new nozzle from 1,000 psi. to about 3,000 psi., and that the closing pressure is definitely established at 1,950 psi.

During injection, the entire injection pressure developed by the pump is now effective at the spray.

Instead of the 1,000-psi. loss of pressure that occurred across the conventional check valve, American Bosch says, there is no loss once the fuel has passed the new "differential valve."

Furthermore, the volume occupied by fuel under the valve after injection is now reduced from 100 cu. mm. to 3.7 cu. mm., a ratio of about 27 to 1.

A further improvement of the injection nozzle consists of a flat check valve that prevents the backflow of combustion gases into the nozzle between injections.

This refinement was developed by Electro-Motive, and is now standard equipment on all its new locomotives.

Conventional injection nozzles can easily be converted to the new type.

All it takes is a simple drilling and reaming of the original injector cap nuts. The cost of conversion, Gewinner says, can be paid off in from five to twelve months when using regular diesel fuel, according to the type of service of the locomotive.

Tests are currently being run with various heavy fuels, and various blends of heavy and lighter fuels.

In tests conducted with Navy boiler fuel (Specification MIL-F-859-A), preheated to 250F to reduce its viscosity, Bosch reports that fuel dribble continued for about 20 degrees of crank rotation after the end of the spray when conventional nozzles were used, whereas the dribble amounted to only 2 degrees of crank rotation with the converted injectors.

Propane Tried As Diesel Fuel

Propane is being tried as a replacement for diesel fuel in an effort to reduce fuel costs on the railroads.

Southwest Research Institute reports satisfactory progress of tests conducted with the Southern Pacific R.R.

Propane costs about half as much as regular diesel fuel.

The tests have shown that to achieve full economy, the propane should be used in liquid, rather than in gaseous form.

To start the runs, a tank pressure of 200 psi. is maintained. To speed up delivery rates of propane to the injection pumps, high-pressure nitrogen is bled into the tank.

SwRI is running a series of tests with various blends of propane and diesel fuel.

But many problems must still be solved, SwRI feels, before the use of propane becomes practical in diesel locomotives. These problems concern the actual injection mechanism, the elimination of objectionable knocking, and certain safety features inherent to this type of use of propane.

What's New / IN PROCESSING

New Castle, Del., has been selected as the site for a 100-million-lb.-per-year polypropylene plant to be built by AviSun Corp.

The proposed plant will be adjacent to the company's 10-million-lb.-per-year film plant and its fiber plant, on a 214-acre industrial site. Product from the new plant will be the chief raw material for the film and fiber plants. Propylene, the raw material for polypropylene, will come from the Sun Oil Co. refinery at Marcus Hook, Pa., about 20 mi. from New Castle.

•

Thompson Ramo Wooldridge, Inc., will manufacture and sell its rw-300 digital control computer in the European Common Market through Compagnie Europeenne d'Automatisme Electronique, a newly formed company located in Paris.

Total capitalization of the company is $1.5-million. TRW owns 51%, Generale de Telegraphie Sans Fil owns 40%, and Intertechnique of France 9%.

Sales for the first year are expected to reach $1-million. Customers will be able either to buy or to rent.

•

A waste heat recovery plant will be built at the Standard Oil Co. (Ind.) refinery that will reduce the plant's total fuel consumption by 6%.

It is being added to a revamped and expanded fluid catalytic cracking plant which makes gasoline.

The new unit, which will be completed in the Spring of 1961, is a Babcock & Wilcox Co. design.

•

The oil industry should contribute to the increase in demand for plastics by using "petro-plastics" for packaging its own products, the petroleum committee of the Packaging Institute was told at a recent meeting.

Henry E. Griffith, vice-president of the plastics container division, Thatcher Glass Co., reminded the industry that it is now the primary supplier of many raw materials for plastics, and is also an important producer of finished plastics.

He also pointed out that, while the costs of metals and paper for packaging are rising, costs of synthetic resins and plastics are heading downward as production increases.

•

United Carbon Co. is expanding the capacity of its Baytown (Tex.) copolymer plant to produce and market a series of new black masterbatch compounds "for faster tire production and improved tire road wear."

Capacity of the Baytown plant will be boosted from the present 150-million lb. per year to 200-million. Construction is expected to be completed late this fall.

IF TIRES COULD TALK THEY WOULD TELL YOU:

"Very close to 50 percent of the butadiene required for synthetic rubber in the U.S. can be produced by plants using the versatile one-step Houdry Dehydrogenation Process.

"And most of this capacity has gone on stream since 1957, based on a background of serving U.S. industry for over 15 years. It is also producing butadiene in Europe, and two additional units will go on stream in Europe and Asia this year."

By direct dehydrogenation of butane, the Houdry Dehydrogenation Process can produce butene as well as butadiene, and produces other mono- and diolefins from the corresponding saturated hydrocarbons. This flexibility allows processors to switch their output to meet changing market conditions, and the changing demands of the chemical industry. Adapting the process to yield a changed end product is simple and economical.

A description of the Houdry Dehydrogenation Process and the economics of its operation will be sent promptly, on request. When you write, you'll find it well worth your while to ask for an up-to-date outline of Houdry services, too.

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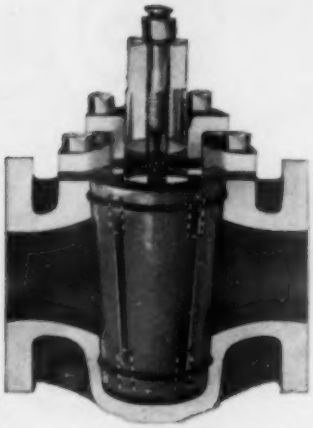
the idea:

Simplicity Is Basic To Efficiency and Economy

One of the world's first valves, plug cocks invented by the Chinese centuries ago, had only one moving part—the plug. Even the earliest craftsman recognized the fact that simplicity of design almost always means a device that works better, lasts longer and costs less to use.

the application:



How It Helps Give You A Better Valve

In the modern Rockwell-Nordstrom lubricated plug valve there are only three rugged, basic parts . . . plug, body and cover. The plug is the only moving part. Compared to other valves, nothing could be simpler or more efficient. Yet the many advantages of simplicity are actually multiplied by *lubrication* in these valves. Pressurized lubrication jacks the plug, keeping it free for instant ¼-turn operation. It also forms an instantly replaceable, impenetrable seal against leakage, and prevents metal-to-metal wear.

the benefits:

Longer Valve Life At Lower Cost . . . Leak-proof Sealing . . . Reduced Down Time . . . Completely Protected Seating

The 6 million Rockwell-Nordstrom lubricated plug valves now used in a wide variety of industries are translating these benefits into dollars and cents savings day after day. Rockwell-Nordstrom is the most complete line of lubricated plug valves (sizes from ½" to 36"; pressures to 15,000 lb), lubricants and operating accessories. For *practical* help in solving your flow control problems, see your supplier or write: Rockwell Manufacturing Company, Dept. 96-G, Pittsburgh 8, Pa. Canadian Valve Licensee: Peacock Brothers Limited. If you live outside the U. S. or Canada, write: Rockwell International, S.A., Geneva, Switzerland.

Lubrication Makes The Difference

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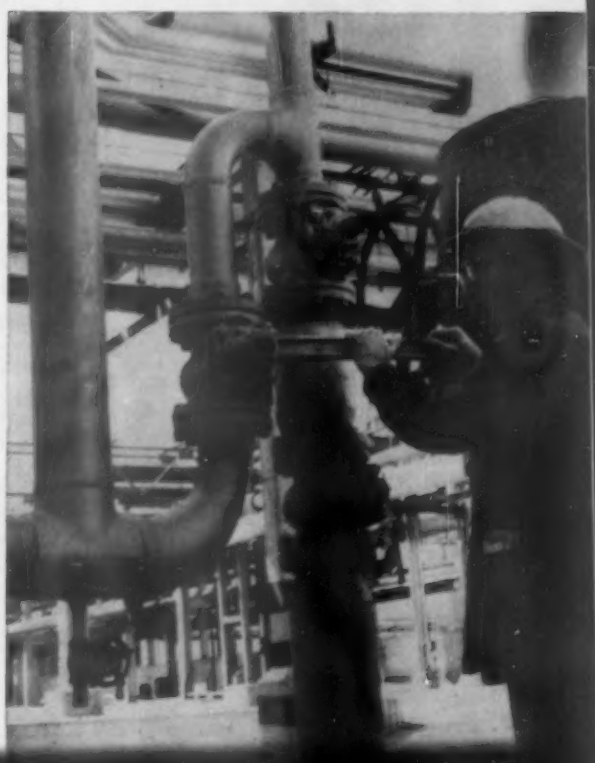


Rubber Tanks Eyed for Offshore Crude

Storage of offshore crude in underwater rubber containers in the Gulf of Mexico, off Louisiana, is being considered by an oil company. A prototype tank is now being tested there by the U.S. Navy.

The company, whose name was not disclosed, has two shut-in oil wells on the edge of a gas field in the Gulf.

The firm reportedly now wants to produce the oil.

It has no platform near the wells, however, that is capable of supporting conventional storage tanks.

The company feels the rubber containers might be an answer to its need for low-cost, temporary storage.

The container was developed by U.S. Rubber Co. The Navy's unit, which includes a special frame and other accessories, was designed by Hanna Construction Co., of Houston.

Site of the Navy test is Block 37, in the Grand Isle area, where water depth is 52 ft. While California Co. owns the lease, it's not participating in the test.

The 1,250-bbl. flexible tank was installed on the Gulf floor by Brown & Root, Inc.

Thus far, the experiment has consisted in filling the container with diesel fuel at a rate averaging 1,000 gal. a min.

The only trouble encountered was the malfunctioning of a volume-measurement device, which was due to a minor design flaw. Otherwise, the unit is reported to have performed successfully.

It will be left in the water for at least six months, however, and tested periodically.

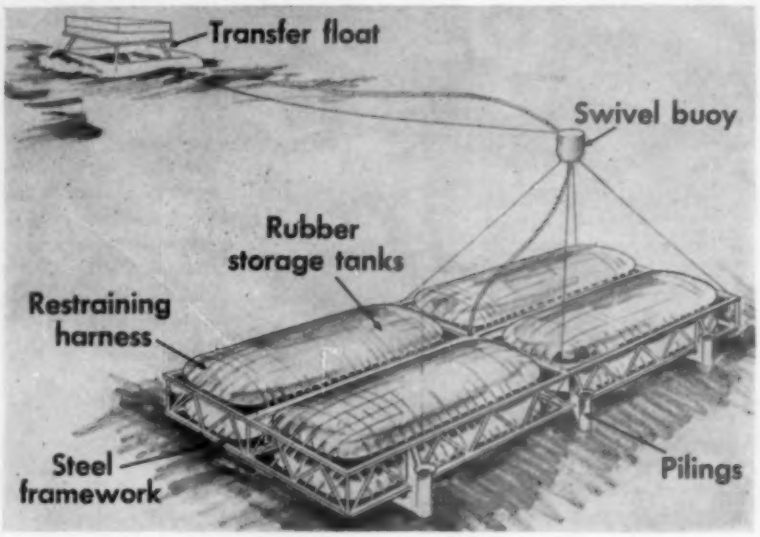
If the test is successful, the rubber storage tanks could find a variety of uses.

The most important application for the petroleum industry, presumably, would be for storage of offshore crude. The developers think it might be possible to load tankers directly from the containers.

In the case of the setup that may be used by the Gulf operator, however, the tanks would discharge the crude to barges.

Another use suggested for the containers is as storage facilities for fresh water, liquid mud, and other materials used in drilling operations.

The Navy's interest in the rubber tanks is as caches for the storage of fuel for use in an emergency.



If its experimental container withstands underwater use, the Navy plans to order them in a 25,000-bbl. size.

These larger tanks would be used for concealed storage of fuel for its fleet ships, the Navy says (PW—Jul. 8'60,p62).

In actual commercial or military use, several of the tanks would be consolidated into one storage unit by lashing them together in a steel frame with nylon straps (drawing).

The experimental Navy tank was secured in this manner.

The tubular frame was then pinned to the Gulf floor by driving pilings through jackets at each corner.

Each piling has a spring-loaded "ledge" that supports the superstructure and keeps it from sliding down due to scouring action.

To prevent the unit from floating upward due to the buoyancy of the filled bag, or laterally as a result of tide action, the framework is inclined inward at the top.

The tanks are loaded through a catamaran—the only piece of equipment visible on the surface—which also contains meters, other controls, and navigational aids.

This raft is secured by a wire to a swivel buoy.

The buoy itself is held below the surface by lines from the frame.

Its function is to keep the loading-unloading line and an instrumentation line from a surface volume reader to the bags from becoming tangled.

The most practical size unit for commercial use is said to be one of four tanks, each of a capacity of 1,250 bbl. (The illustration shows such a unit.)

This size is considered to be the easiest to handle and install.

But larger units can be built and installed by tiering the tanks.

For example, according to Hanna Construction, it would be possible to construct a unit of a capacity of 15,000 bbl. by adding two more layers of containers.

Hanna says that its design provides this flexibility, and that bigger frames could be built to accommodate more tanks.

And, Hanna estimates, cost of additional layers would be less than that of the first tier, since the cost of building a larger frame would not be appreciably higher.

"About all that's involved in the additional cost is the price of the rubber bags and harness," says Fares Hanna, head of the company.

While no firm figures are available yet on the cost of the tanks themselves, Hanna estimates that a one-tier unit could be installed for "less than $25 per bbl."—in all but extremely deep water.

The cost of building surface storage facilities in deep water can amount to over $60 a bbl. according to one estimate.

U.S. Rubber laboratory tests have shown that there is no diffusion of

either oil or water through a submerged tank.

Construction of the bags is of rubber comparable in toughness to that used in making aircraft wing fuel tanks.

In addition to the fact that there is no wall leakage, the underwater system has been designed to prevent water contamination during loading and discharging of the containers.

Under most water conditions, according to Hanna, pumps wouldn't be needed either to load or discharge a container.

Prime factor determining whether a pump would be needed is water depth.

For example, a Hanna spokesman says, "hydrostatic head" would be sufficient to permit gravity-flow filling from most ocean-going ships—"provided the water isn't really deep."

Conversely, the pressure of the water on the bag would, in most cases, be adequate to push its contents to the surface.

Hanna estimates that, in depths of over 100 ft., water pressure would be sufficient to discharge the contents of a tank through a 6 in. or 8 in. hose at a rate of 2,000 bbl. an hour.

An automatic safety valve has been designed to stop inflow when a tank has been loaded to capacity.

This is how the device works: A wire is strung slack from the bottom of the container to the valve itself at the top. As the tank is filled, it expands and the slack in the wire is pulled up. When the wire is stretched to its limit, it pulls down a plunger and shuts the valve. The valve is tightened into place by the pressure in the line above.

The storage units are also equipped with a device which records the volume of liquid stored in a tank by measuring inside and outside pressures.

The instrument—called a "fuel capacity transmitter compensator"—contains a diaphragm, which is in contact both with the contents of a tank and with the seawater. Both sides of the diaphragm are connected by hoses to a manometer at the surface.

The different pressures are transmitted through the hoses to the manometer, where they are read and converted into a volume reading.

The compensator is calibrated to measure the volumes of a variety of products. In addition, the instrument compensates for variations in pressures due to tidal action.

Its primary function is to correct errors that might occur in metering measurements.

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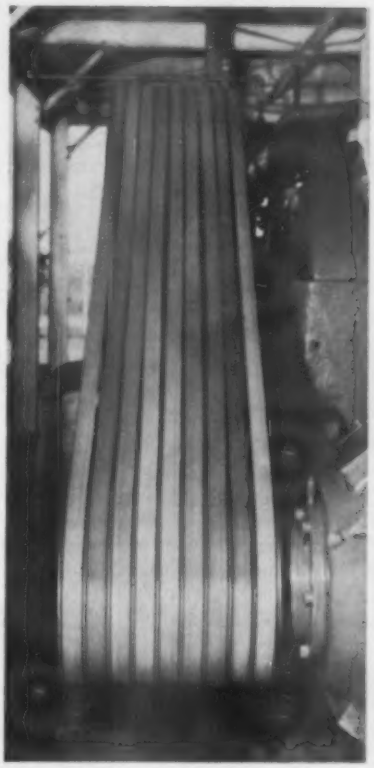

Conventional V-Belt Drive

Thermoid-Quaker "Powerflex Wedge" V-belt drive

Quaker Thermoid "POWERFLEX WEDGE" V-BELTS SAVED $402 ON THIS JOB

The shape of new "Powerflex Wedge" V-belts is narrower with added depth . . . for a big jump in "pulling" power. More pull means fewer belts, smaller sheaves, shorter centers and less bearing load; *more efficient power transmission.* Costs on this documented "Powerflex Wedge" installation amounted to a savings of $402.14 over the conventional V-belt drive.

But design isn't the whole story! New Thermoid-Quaker rubber compounds and tougher, load-carrying cords play a vital role in prolonging belt wear . . . for even greater savings.

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Westcoast Gas Plans Full-Line Loop

Westcoast Transmission Co., Ltd., plans to loop its 688-mi. natural gas pipeline system in British Columbia and Alberta to boost its capacity to over 1-billion cf/d.

Westcoast's 30-in. line runs from Fort St. John, B.C., to the U.S. border at Sumas, Washington.

Peak throughput thus far this year was an average of 325-million cf/d in April and May.

The pipeline expansion is made necessary by sharp growth in Westcoast's market.

British Columbia Electric Co., one customer, recently completed what is said to be the world's largest gas-turbine electric plant, in the Vancouver area. This plant, plus a smaller gas thermal plant now under way, will use 180-million cf/d.

In addition, Westcoast forecasts, demand on the U.S. West Coast will climb by 1-billion cf/d in the next five years. Westcoast, which now exports 300-million cf/d to El Paso Natural Gas Co., has National Energy Board approval to increase its deliveries by 152-million cf/d (PW—Apr.8'60,p23).

Much of the additional gas will come from the Ft. Nelson area, to which Westcoast plans to complete a 250-mi. extension by the Fall of 1961 (PW—Apr.8'60,p39).

This 30-in. line will have an initial capacity of 350-million cf/d, and an ultimate capacity of 650-million cf/d, according to Westcoast. The company hasn't announced a construction schedule for its proposed loop.

Westcoast says that when it negotiates new export contracts, it will ask a higher price for the gas "to provide an equitable return on all its investments."

The company has been operating at a loss for two years. In its 1958-59 fiscal year it lost $1,278,634 on its operations.

Despite an increase paid to producers, Westcoast was able to cut its loss to $915,794 during the past fiscal year.

HARBERT
CONSTRUCTION
CORPORATION
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ALABAMA

What's New / IN TRANSPORTATION

Contracts have been awarded for the construction of three new products pipelines in the Northwest.

The proposed 190-mi. line of Farmers Central Exchange will be built by Curran Co., Great Falls, Mont. The $5-million line will extend from Glendive, Mont., to Minot, N. D. Farmers Central's existing line runs from its Laurel (Mont.) refinery to Glendive (PW—Mar.11'60,p41).

The 85-mi. pipeline planned by Yellowstone Pipe Line Co. to connect Helena and Great Falls, Mont., will be built by R. H. Fulton Co., Lubbock, Tex.

And a 96-mi. line will be built for Wyoming Husky Pipeline Co. from Cody, Wyo., to Billings, Mont., by W. E. Claycomb & Son Construction Co., Cody.

•

Major pipeline expansion plans of two affiliates of Peoples Gas Light & Coke Co. have been authorized by the Federal Power Commission (PW—Apr.29'60,p50).

An expenditure of $74.7-million is proposed to add a total of 702 mi. of new lines to the systems of the two companies.

The affiliates are Peoples Gulf Coast Natural Gas Pipeline Co. and Natural Gas Pipeline Co. of America.

The project will boost the capacity of their systems by 185-million cf/d, to 1.4-billion cf/d.

•

A fueling barge has been put in operation on the Mississippi River by Sinclair Refining Co. to service vessels in midstream.

The special barge carries 126,000 gal. of fuel, plus water tanks, lube oil dispensers, and provisions.

It's also equipped with ship-to-ship and ship-to-shore radios.

The 115-ft.-long vessel operates from Sinclair's Wood River (Ill.) refinery.

•

The first pipeline delivery of butane from Atlantic Refining Co.'s Philadelphia plant to undeground storage has been completed.

A total of 10,000 bbl. were batched with conventional products through the company's 240-mi. line to Bath, N.Y. The butane will be stored there in a salt cavern of Anchor Petroleum Co. until it's needed at the refinery next winter.

•

Aztec Pipeline Co., a subsidiary of Continental Oil Co., is building a pipeline to deliver jet fuel from Artesia, N.M., to Walker Air Force Base, near Roswell.

The 36-mi. line is expected to be completed next month.

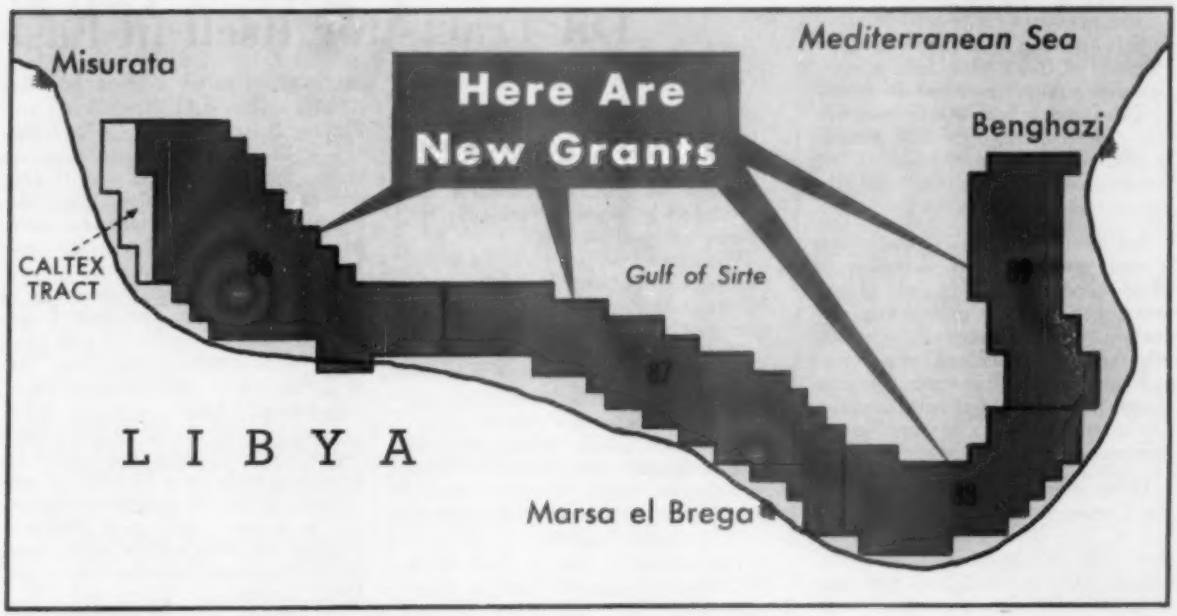
•

Plantation Pipe Line Co. will replace the 4-in. section of its products pipeline between Helena and Montgomery, Ala., with an 8-in. line.

Replacement of the 73-mi. line will cost $2-million.

The larger line will boost the company's delivery capacity to 20,000 b/d, an increase of 11,700 b/d.

The company's line extends from Baton Rouge, La., to Greensboro, N. C., serving 17 distribution terminals.



Atlantic Refining Wins Libyan Acreage

Atlantic Refining Co. last week broke into the Libyan oil play on its first try—picking up some 10,500 sq. mi. of offshore acreage.

The company's tract, divided into four concessions, stretches across the Gulf of Sirte, an arm of the Mediterranean Sea, (map).

The blocks range in size from 1,882 sq. mi. to 3,409 sq. mi. They are numbered 86 through 89.

Atlantic beat out Phillips Petroleum Co., which had entered three bids for substantially the same acreage a month after Atlantic's applications were filed.

Phillips, although it has applied for onshore as well as the just-granted offshore rights, has yet to get any of Libya's coveted acreage.

While concession terms have not been announced, it is understood Atlantic gave up the 25% depletion that's provided for in the oil law.

Since the big oil discoveries of last year brought a big demand for acreage, Libya has been demanding and getting a stiffer price for rights.

Successful bidders have not only given up percentage depletion, but have also agreed to pay higher royalties than those set by the oil law and to spend more for exploration, among other things.

Offshore areas, however, generally call for greater exploration expenditures than onshore acreage. And not all oil companies have the technical or financial resources for offshore drilling. These two factors undoubtedly played a part in the determination of concession terms.

The offshore area is interesting geologically, since it is an extension of the Sirte Basin in which Libya's major finds have been made to date.

Caltex already has a wholly offshore concession, Block 83. And nearly all of the onshore tracts along the coast also take in small undersea sections.

There is very little acreage left open in Libya at this time. That which remains is in the remote south, in wild desert country, far from coastal outlets.

The situation will change beginning next November, however, when the first acreage relinquishments must be made. With a few exceptions for very small concessions, all blocks must be reduced by one-quarter within five years of the original concession date.

Communists in Iraq Demand 'Integration,' Other Oil Changes

(From PETROLEUM WEEK'S *Middle East Bureau)*

For the first time since the 1958 revolution in Iraq, Communists are publicly demanding "radical" revision of the government's oil policy.

Ever since the Communists and Iraqi Premier Abdul Karim Kassim parted company a few months ago, the Communists have directed their fire at the "imperialistic oil monopolies."

They have now formulated specific demands, including a call for revision of the government's attitude toward the internationally owned Iraq Petroleum Co. group, which at present holds concessions over virtually all of Iraq.

Interestingly, the Communists do not demand ditching of the 50-50 profit-sharing principle—even though they do demand a greater stake for the government in operations of IPC.

The demands were listed in the Baghdad daily "Ittihad el-Shaab," official publication of the Iraqi Communists, with the proposal that the government enter into negotiations with IPC to secure them.

The Communists demand active

Iraqi participation in oil policy-making, by government participation in ownership of Iraq Petroleum Co.

The newspaper suggested "starting in this direction by earmarking a specific rate of Iraq's oil income to cover this subscription" to the share capital.

This could be had, it said, by "starting with Iraqizing" the 5% interest in IPC now held by the Gulbenkian interests, and the 23¾ interest of "the French oil monopolies."

Full integration of IPC operations is also proposed, with extension of 50-50 profit-sharing to all oil operations, "including exploration, production, refining, transport, and distribution." (This demand echoes views of Saudi Arabia's oil director, who concluded just such a deal with the Japanese on that country's offshore Neutral Zone concession.)

Other demands are also listed by the Communists:

- That IPC be subject to Iraqi laws, with all special privileges withdrawn—such as exemptions from customs and excise duties and foreign exchange regulations.
- That foreigners in executive positions be replaced by Iraqis.
- That the government bear no costs of any IPC operations in which it has no share of profits.
- That IPC be forced to relinquish all concession areas which have not been, or are not being, developed. (IPC has agreed to give up half its acreage. Talks on selection of areas resume Aug. 16.)

Venezuela Picks Out Eight Oil Tracts for Itself in East

(From PETROLEUM WEEK'S *Caracas Bureau)*

CARACAS—The Venezuelan government this week for the first time disclosed the specific acreage it has earmarked in eastern Venezuela for its new national oil firm.

The acreage is scattered in eight parcels, Oil Minister Dr. Juan Perez Alfonzo told PETROLEUM WEEK in an interview here in Caracas.

One of the tracts is in Guarico state. The other seven are in Anzoategui state—five in the Oficina area, and two in the Anaco-San Joaquin area.

The tracts adjoin acreage of four long-established operators in Venezuela—Creole, Mene Grande, Mobil, and Texaco—plus two "newcomers" —Phillips and Atlantic.

The acreage is in addition to a 332,940-acre L-shaped tract in Lake Maracaibo that was previously assigned to the new Venezuelan Petroleum Corp. (PW—May 6'60,p82).

The eastern tracts, totaling 16,428 acres, range downward in size from 11,000 acres to a few hundred acres or less.

Most are national reserves, or "leftover" lots returned to the government after surveying of concessions. Here are details:

- The one tract in Guarico is an 860-acre parcel wedged between Atlantic's Ruiz field (3,000 b/d) and Phillips' Bella Vista field (1,720 b/d).
- In the Oficina area of Anzoategui, the biggest parcel is an 11,200-acre national reserve in the West Maron area. It offsets acreage of Creole, Mene Grande, and Mobil, but there is no nearby production.
- Second-biggest Oficina tract is a 3,700-acre lot in the East Caico area. It offsets a producing well on a joint Mene Grande-Creole lease and is surrounded by other leases of Mene Grande and Mobil.
- A small parcel in the Oca-North Chimire field is surrounded by producing wells on a Mobil lease and on joint Creole-Mene Grande acreage.
- A tiny parcel is located just south of the Mata field in a river bend on the boundary between Texaco and Mobil acreage.
- Another parcel near the town of Pariaguan is located between producing wells in the Elenas field of Creole-Mene Grande on one side, and in Mobil's Budare lease on the other side.
- In the Anaco-San Joaquin area, a thin sliver of a tract extends into Mobil's Guario field, which is currently producing about 4,000 b/d of waxy crude. The other end offsets a producing well on joint Creole-Mene North Santa Rosa acreage.
- The other parcel in the Anaco-San Joaquin area is within the Phillips and Mene Grande San Roque field, which is currently producing 3,000 b/d.

Drilling locations in eastern Venezuela are being studied, the Oil Minister said. He also confirmed two prospective locations in Lake Maracaibo for VPC's initial tests.

The Minister said that one tentative lake site is in a corner of VPC's acreage that offsets Phillips' Block 17 (on which it is operator for itself and seven other partners) and Shell's Block V.

The other prospective lake site offsets Superior's Group 75 lease and Sun's Block 1, shared with Atlantic and Texaco Seaboard.

Likeliest initial drilling site in eastern Venezuela, according to unconfirmed reports, is on the 860-acre Guarico parcel between producing wells of Atlantic's on one side and Phillips on the other. Wells in that area are about 4,000 ft. in depth, and would be considerably cheaper to drill than in the lake.

Esso Pipe Rides Waves to Libya Beach

With no port facilities available at Marsa el Brega, Libyan crude export terminal site, Esso faced a problem in unloading 13,000 40-ft.-long, 2-ton joints for use in its pipeline from Zelten field to the Mediterranean coast. The solution: Plug the ends of each joint with plastic and float it ashore. Here workmen load pipe aboard a marine railroad at the beach.

What's New / AROUND THE WORLD

ALGERIA—Mobil and its French partners have spudded a second stepout from the Ohanet discovery well in the eastern Sahara.

The new hole, No. 103 Ohanet, is 2 mi. north of the 1,900 b/d producer, No. 101, and 2 mi. south of the No. 102, which is being drilled below 1,700 ft. The French firm CEP is operator.

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INDIA—Indiana Standard is the latest company reported showing interest in negotiating exploration rights under India's revised oil rules. It is also looking into the possibility of building a refinery at Madras, in southern India (PW—Jul.14'60,p48).

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GUATEMALA—Ohio Oil Co.'s second Guatemalan wildcat has reached 7,900 ft. without oil shows—or drilling problems. Continental Oil and Amerada Petroleum are participating in the test. The site is 17 mi. northwest of the trouble-ridden No. 1 Chinaja, which the same group—plus Union Oil of California—abandoned for mechanical reasons at 10,607 ft. after encountering noncommercial shows (PW—Apr.8'60,p80).

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WEST GERMANY—Shell's new refinery near Cologne went on stream last week with initial 50,000 b/d capacity, to be increased to 80,000 b/d by 1965. Deutsche Shell pointed out that of 5.3-million tons of products it sold last year, only 2.5-million tons were produced in Germany. It expects German product demand will increase about 19% this year, to 27-million tons, following a 23% increase in 1959.

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INDIA—Independent consultants DeGolyer & MacNaughton place proved recoverable reserves of the new fields in Assam at 29-million tons, with another 13-million tons indicated but not confirmed by testing so far.

The estimate was made for Oil India Private, Ltd., the development company formed ⅔ by Burmah Oil and ⅓ by the Indian government. It hopes to prove another 20-million tons to permit producing 3-million tons annually for at least 15 years.

USSR—Soviet oil output in the first half year was boosted 15% over the same period of 1959, to 70.7-million tons, Moscow's Central Statistical Board reported last week. Gas output climbed 29% to 7.9-trillion cu. ft.

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SAUDI ARABIA—Aramco has suspended drilling at its offshore Manifa field to concentrate for the rest of the year on further "delineation development drilling" at Safaniya, its first offshore field, which is already in production. It now has six producers plus one observation well drilled and shut in at Manifa.

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GABON—Shell with its French partner Spafe have applied for a 1,450-sq. mi. offshore exploration permit adjacent to the two companies' onshore concession. Shell will operate for the partnership on the offshore tract.

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USSR—The Soviet tanker fleet will be increased by an undisclosed number of 19,000-ton tankers, plus smaller ones. They'll be built in Poland's shipyards in 1961-65 under an agreement for 122 vessels of various types, totaling 830,000 tons.

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EGYPT—Cairo has boosted its subsidy to the General Petroleum Authority to $7-million for the fiscal year starting in July, from $5.6-million in 1959-60. The new GPA budget is $199-million, down from $200-million. The Economy Minister, in announcing budgets of autonomous public agencies, said government subsidies were given to those that cannot fully rely on their own revenues.

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JAPAN—Latest deal for Soviet crude has been signed by a small Japanese independent, Toa Oil Co., which will import about 15,000 tons starting in mid-August. Meanwhile, the first Soviet fuel oil imported by a Japanese refiner is en route to the independent Shin Asia, which is reported dickering for another 4,000 tons.

Mobil Extends Its Libya Field

Mobil has completed a new Libyan oil well that extends its Hofra field 3½ mi.

The new well, the No. 3 Hofra, on Concession 11, flowed 890 b/d of 43.9-gravity oil through ½-in. choke and perforations at 3,078-88 ft.

It is 3.5 mi. southeast of the No. 2 Hofra, a 1,500 b/d discovery. The No. 1 hole was dry.

The Hofra wells are about 10 mi. south of the Dahra field of Oasis Oil Co., and may form an extension of that field.

Meanwhile, Oasis Oil has brought in a new well on its Block 59.

B-2-59 produced 35-gravity oil at the rate of 400 b/d from 5,500 ft. The nearby discovery well, B-1-59, tested at 1,500 b/d last spring.

BAHRAIN—The first attempt to extend Bahrain's oil production offshore will be made later this year with a wildcat 15 mi. north of Manama.

Bahrain Petroleum Co., a Caltex affiliate, will use a National 100 rig to drill the offshore test at Fasht al-Jarim, a shoal in about 5 ft. of water. The aim is to explore the zones that are productive onshore. Platform construction will start in August, and two drilling crews will be housed in barges.

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ITALY—Enrico Mattei's internationally spreading ENI group is buying a jet transport plane in the U.S. to speed contacts with its operations in the Persian Gulf, Africa, South America, and Europe. It will be a new four-engine, eight passenger JetStar, produced by Lockheed Aircraft Corp.'s Georgia Division at Marietta.

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ALGERIA—The first crude exports from the Sahara's second oil area—near the Libya border—are now expected to start in September.

Creps, French operator in which Shell has a 35% interest, announced it has started test runs of oil through its 24-in., 485-mi. pipeline to the Tunisian port of la Skhirra with one temporary pump station operating so far.

Born: A Drive to Boost Total Demand

The API Stimulate Gasoline Demand Committee met last week to minister to the birth of an industry-wide campaign to boost demand—an idea that was conceived more than 18 months ago.

As at all births, it was felt that a new name was needed. After discussing several titles, including Motor Travel Council and Drive for Fun Committee, the group decided on Travel Development Committee.

This name, the members felt, will better convey the idea of the broad approach that the committee plans to take in stimulating over-all demand. Furthermore, the name should sit well with tire manufacturers, motor owners, and other groups whose aid will be sought in encouraging travel.

Apparently the committee will direct its campaign toward boosting marine demand almost as much as it concerns itself with car travel.

The committee is developing a plan for an undisclosed company, through which many people who can't afford boats will still be able to churn up the water in rented craft.

At several marinas, the company would give half-hour lessons in inboard boating to marine enthusiasts. Qualifiers would be given a card allowing them to rent a boat.

James G. Bennett, coordinator of the committee, sees great promise in the plan.

At the Chicago meeting, the committee heard a lengthy report on automotive safety, but took no action pending further study.

Grant Young, of Ohio Oil Co., head of the safety subcommittee, explained that API is already supporting several safety groups, and suggested that "maybe what we need is to have some people take an active interest in groups already set up."

Published statistics on highway deaths—one supposed deterrent to increased holiday driving—were also discussed. Young said his subcommittee will work closely with the National Safety Council in an attempt to set a less sensational tone to death forecasts. These have become so bad, he noted, that a California undertaker, for example, offered to give free funerals to people killed over the July 4th weekend—if they registered in advance.

The committee heard an encouraging report on what is being done to persuade newspapers, magazines, and other media to devote greater editorial coverage to car travel.

Several newspapers have been contacted. And in every case, Bennett said, the papers reported plans to improve and enlarge upon automobile-oriented travel articles.

Some magazines indicated a desire to establish continuing auto travel sections, which is an "about-face" from their earlier campaign for foreign travel, Bennett reported.

At least one of the big Sunday supplements will form a committee to study auto travel, he added.

No contacts have been made yet with radio and TV stations or networks.

Some allied industries, such as carmakers and tire companies, have been approached, and many companies expressed interest in developing the travel theme.

No action was taken last week on the proposed $3-million advertising program that was announced in January by Harry Moir, chairman of the committee and marketing vice-president at Pure Oil Co.

The advertising subcommittee, headed by R. M. Gray, of the Esso Standard Division of Humble Oil & Refining Co., had not met before last week's committee meeting, and therefore could not report on the campaign.

Besides this advertising campaign, the Gray subcommittee is charged with devising a plan for getting the individual oil companies to devote more of their $150-million of competitive advertising to the theme of boosting total demand.

At the start of last week's meeting, the API committee spent about five minutes discussing an "alternate plan" for stimulating demand, submitted by Dan Lundberg, who is public affairs council for the California Petroleum Marketers Council.

Lundberg had written to the committee warning them against any program that would be "too obvious" or cause the public to "smirk" and make cynical remarks about the "thinly transparent" message to "burn more gas, for our sake."

Lundberg's criticism appeared to be directed in part at the content of Moir's original advertising campaign proposal.

However, after canvassing several West Coast oil men Lundberg concluded that a stimulate-demand campaign should be built around the slogan, "Let's Make Driving Fun Again," which in itself was reminiscent of Moir's thinking.

Moir himself concluded that Lundberg's alternative plan was not substantially different from the approach his committee had already taken to boosting demand.

Amoco Seeks National Image

The executives of the suddenly full-blown American Oil Co. have already begun wrestling with a tough brand-image problem.

In taking over the 45-state domestic marketing for Standard Oil Co. (Ind.) on Jan. 1 (PW—Jul.15'60,p15), the American executives must cope with this puzzler: How do you blend the image of a leading company that has broad availability of service stations (Indiana Standard) with the image of a sparsely located company that sells an unusual (nonleaded) premium product (Amoco)?

As one American executive observes, "Indiana Standard probably sells more gasoline in Chicago, alone, than we do in any two of our divisions."

As a step toward nationwide unity of brand image, American last week announced that its new gasoline brand names will be "American Regular" and "American Superpremium."

These names will be posted on all pumps in stations now operated by Standard itself and Utah Oil Refining Co., Standard's subsidiary in the Rocky Mountain area and the Northwest.

The word "superpremium," which will not be used in the present Amoco stations, in the East and Southeast, suggests that American is about to introduce a third grade in its newly acquired territory.

But not so, at least for the near future, according to the company. The name is used just to call a spade a spade, it says: The gasoline marketed under "American Superpremium" will

rank in quality with other superpremium gasolines sold around the country by three-grade marketers. This is already true, for example, of Gold Crown gasoline, which is sold at Indiana Standard stations in the Midwest, the company says.

It is not true, however, of the nonleaded premium fuel sold through the Amoco stations. Therefore, this fuel will be called "Amoco Premium."

Another step that American executives are pondering is an extension of the torch symbol to the Amoco stations in the East.

This symbol, which is used everywhere else in the Indiana Standard territory, including Amoco stations in the Southeast, will probably accompany an extension of Standard's red-white-blue color scheme into the entire Amoco territory. At present, red and black are the colors for Amoco signs in the East.

Stations in the present Indiana Standard territory will retain the name "Standard," but the crowns that adorn the Standard pumps now appear doomed.

Word is that these expensive ornaments (they're hand-made in Arkansas) will be phased out slowly. New stations completed after the reorganization becomes effective will probably not have them, according to an American executive.

Trading Stamps Under Fire As Result of California Ruling

A movement is spreading in Northern California to "stamp out stamps." It follows a ruling by the state attorney general, Arnold Mosk, that complicates gasoline pricing by requiring that a deduction be made for the cash value of trading stamps (PW—Jun.24'60,p88).

Two organizations—the California Petroleum Marketers Council and the California Federation of Service Stations—have capitalized on the ruling by starting the "stamp out stamps" campaign among service station dealers.

They claim that 99% of the dealers in the town of Richmond have stopped giving stamps. On the San Francisco peninsula and in Oakland, 50% of the dealers have discontinued trading stamps, they say, and the movement is spreading west through Contra Costa County and the San Joaquin Valley.

One trading stamp company—Sperry & Hutchinson Co.—reports, however, "no significant loss" in dealers—but it does acknowledge "widespread uncertainty" among its dealer subscribers throughout California.

Earlier this year, Blue Chip trading stamps swept like a wave through California service stations, saturating many of the larger cities.

The promoters of these stamps conceived of them as a defense against the large stamp companies.

One of the last oil companies to take on stamps at that time was Standard Oil Co. of California, which markets a fifth of the gasoline sold in California. Although Standard has not completely reversed itself, it has discontinued stamps in two Southern California towns—Pomona and Ontario—where "most of the competition has discontinued giving them."

The ruling was scheduled to go into effect July 1, but it has been postponed.

Mosk has declared a 60-day stay, reportedly to permit service station dealers to work out mechanical details, such as changing price signs.

Other reports indicate that state legislators have questioned Mosk's ruling and have urged that he delay enforcement. Mosk denies this, however.

In his ruling, Mosk interpreted trading stamps as a discount off posted gasoline prices—now that trading stamps must carry cash value on their face, and be redeemable for cash. But the law requiring this cash value did not really change the status of trading stamps, says a legal executive in Sperry & Hutchinson.

Stamps have long had a cash value he says, because stamp-savers have to pay a state sales tax when redeeming the stamps for merchandise. To determine the amount of the tax, a value of 1/10¢ was attributed to the stamps.

Furthermore, the California Supreme Court has ruled that trading stamps are not discounts off retail prices, but are just a reward to customers for paying cash.

Nevertheless, the state Bureau of Weights & Measures, which is charged with regulating fuel advertising for the state Dept. of Agriculture, warned that the law will be strictly enforced—as soon as Mosk clarifies the ruling.

William E. Warne, director of the bureau, has asked Mosk for a formal opinion on the trading stamp law.

What's New
IN MARKETING

Standard Oil Co. (Ind.), which is turning all of its domestic marketing over to its subsidiary American Oil Co., has taken steps to protect the "American" name in the Midwest.

It has purchased—or taken short options on the purchase of—the names of four midwestern oil jobbers that have "American" in their titles: American Refiners Outlet, Inc., and American Bulk Oil Co. (both of Chicago); All American Petroleum Co. (Skokie, Ill.); and American Petroleum Co. (Davenport, Iowa).

All four of these marketers will continue in business, but will use new names.

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Union Oil Co. of California has followed the growing trend toward keystop, self-service loading (PW—Jun.3'60,p47).

At its Petaluma (Calif.) diesel fueling station, a driver fills his own tank truck simply by inserting a key in the assigned slot. A special mechanism, designed by Granberg Corp., activates the pumps, and records withdrawal data both at the pumping site and in the locked key-house.

The system permits drivers to load any product stored at the terminal at any time, day or night.

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The total energy requirements of the nation over the next ten years will increase at the rate of 3.5%, compared to 2.6% during the 1950s, according to Mobil Oil Co.'s latest forecast.

The greater rate of increase is caused by two factors, L. S. Marshman, manager of Mobil's wholesale department, told the Oil Heat Conference of the Iowa Independent Oil Jobbers Assn., in Des Moines last week.

These two factors are: efficiency gains, which in the coming ten years are not expected to be as great as in the recent past; and the greater use of new energy-consuming devices, which should add to energy demands.

In this expanding energy market, Marshman said, only natural gas and nuclear power are expected to show gains in market share. Oil's market share will decline; Mobil figures its demand will grow at a 2.8% rate, compared to the 3.5% for all forms of energy. And coal is expected to reverse its output decline of the 1950s and increase at a 2.7% rate.

JOHN F. O'CONNELL, vice-president of Bechtel Corp.'s refinery and chemical division in San Francisco, has been elected a director. O'Connell, who joined the company in 1942, became a vice-president in 1952. Last year he was named operating head of the refinery and chemical division.

J. F. O'Connell

J. V. Bond, Jr.

J. V. BOND, JR., becomes Pittsburgh division sales manager, and **Bill McIntyre** southwest zone sales manager, for Tuboscope Co., Houston. Bond will manage sales at Tuboscope's new Amalog pipe inspection plant at Walker's Mill, Pa., for customers who prefer to have their purchases inspected before having them shipped. McIntyre, who was formerly located in the northwest zone, will handle sales in the Houston, Kilgore, and Corpus Christi areas.

JOHN B. CRUELL moves up to manager of the Southern California district for Nalco Chemical Co.'s industrial division, with offices in Glendale. Cruell, who was formerly area manager of Nalco's New York office, joined the company in 1955 as a field representative in the Texas district. **John H. Gallagher,** service representative in Nalco's Eastern district, succeeds Cruell as manager in New York.

WILLIAM EDWARD DICKSON has been named geophysical supervisor in Madrid, Spain, for Geophysical Service Inc., Dallas. Dickson, who has been in GSI's London office, will now be responsible for the operations of GSI exploration field parties in the Spanish Sahara. **Lewis Sole** joins the personnel department in Dallas as administrator for GSI field parties in the Eastern Hemisphere and Latin America. Sole joined GSI in 1933, and has been a seismic party chief since 1950.

G. A. SAAR has been named general manager, mechanical departments, and **W. M. TERRY, JR.,** general manager, electrical departments, for the industrial equipment division of Allis-Chalmers Mfg. Co., Milwaukee. Saar, who has been assistant general manager of the industrial equipment division, is now responsible for operations of the processing machinery, compressor, and West Allis pump departments. Terry, director of engineering coordination for Allis-Chalmers Industries Group since 1957, is now responsible for the operations of the Norwood (Ohio) Works, including the electrical and pump departments and the control and industrial systems department, and the rectifier section at the West Allis Works.

PARQUIP, INC., is the new sales and service organization for Parks Equipment Co., Houston. Sales personnel transferred from Parks to Parquip include **W. R. (Bud) Lee,** West Texas branch manager, in Odessa, and **R. L. (Dick) Dunn,** who handles sales in the Texas-Louisiana Gulf Coast regions. Parks equipment was formerly distributed through agents in the Permian Basin, under the name of Odex-Parks. The company now offers enginering services as well as products to systems and tank fabricators.

ERNEST H. RETTIG has been named to the newly created position of sales and service representative for South America for Grove Valve & Regulator Co. He will be located in Houston, but will make frequent and extended trips to South American countries. Rettig was formerly technical representative in the project engineering and pipeline construction departments of El Paso Natural Gas Co., El Paso, Tex.

E. H. Rettig

J. A. Menster

JOHN A. MENSTER moves up to manager of welded tubing sales for Babcock & Wilcox Co.'s tubular products division, with offices in Alliance, Ohio. Menster, who has been assistant manager since 1950, succeeds **Leon E. Jeanneret,** who is retiring. Menster joined B&W in 1943 as a sales correspondent at the Alliance plant of the tubular products division. He later served as manager of the Alliance sales office.

JACK G. CLARK has been appointed superintendent of Hunt Tool Co.'s Houston plant. At the same time, **Jack T. Rodgers** was appointed assistant secretary-treasurer, with offices in Houston.

SHIRLEY C. HEWITT is manager of the new Laurel (Miss.) district for Delta Tank Mfg. Co.'s oilfield division, and **Oliver F. Kellams** has been named branch manager there. Hewitt was formerly a Delta branch manager, and Kellams was an office manager. **Charles Howard Maddox** has joined the sales and service department at Laurel. He was formerly in the sales and service division of another supply company. **Gary L. Clark** is the manager of Delta's Odessa (Tex.) branch. He joined the branch earlier this year, after serving in the tank erection, warehouse, and sales departments of several other fabricators. **Lonnie P. Graham** is the new sales representative in the Odessa oil and gas equipment sales department, and **Don Burch** is in the sales and service division there.

W. F. BLISS, JR., has joined Universal Oil Products Co. as product sales representative in the Gulf Coast area, with offices in Houston. Bliss has had eight years' experience in the petroleum, petrochemical, and chemical industries.

B. Q. WELDER has been named manager of the newly created oilfield division of Hagan Chemicals & Controls, Inc., Pittsburgh. He was formerly in charge of oilfield and boiler water chemical sales. In his new position, he will handle sales and service activities of the division, which will offer specific chemicals for specific customer problems. The division's water-oriented products include controlled solubility phosphates, scale solvents, injection stimulants, and biocides.

B. Q. Welder

C. J. Erwin

C. J. ERWIN is the new district sales representative in South Louisiana, with offices in Lafayette, and **R. E. Cabiness** is the new Houston area sales representative, for the fishing tool division of Wilson Supply Co. Erwin was division manager for another service company before joining Wilson. Cabiness, who has served as assistant drilling and production superintendent for West Production Co., was engaged in city and field sales for a rental tool company in the Houston area before joining Wilson.

JACK R. MILLS has joined the oil and gas division of the Citizens National Bank, Los Angeles. He has been associated with Sunray Mid-Continent Oil Co. for the past nine years as division contract attorney and landman.

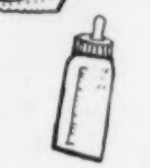
JOHN FARMER has been promoted to manager of Franklin Supply Co.'s Chicago branch. Farmer, who joined Franklin in 1953, was most recently Chicago city salesman. **Kenneth E. Blessing, Jr.,** assistant manager of purchases at Houston, has transferred to East Chicago as salesman. **Kenneth Thatch,** who is located at the Jonesville (Mich.) store, has been promoted from trainee to salesman. **Raymond Scott** has joined Franklin at the Grayville (Ill.) branch. He has been with Otis Engineering Co. in Venezuela, and has also been employed by Sun Oil Co.

General Theme

OF PETROLEUM WEEK'S

1960 SPECIAL REPORT ON PETROCHEMICALS

(to be published in the August 19th issue)



WILL BE the trend toward developing special products for specific uses, rather than the production of general-purpose chemicals.

The Special Report will examine the causes of this trend, its impact on research and marketing efforts, and its advantages and disadvantages for the industry.

This Special Report **(and the advertising associated with it in that issue of Petroleum Week)** will be read with interest by the men responsible for the development and growth of the petrochemical industry . . . the oil industry's managers, planners, researchers and owners.

ADVERTISE YOUR PRODUCTS AND SERVICES for the petrochemical industry to them in the August 19th PETROLEUM WEEK.

CLOSING DATE FOR ADVERTISING SPACE RESERVATIONS

JULY 29th

The 6th of the 8 annual Mills Shepard studies of the readership of advertising (and editorial) in Petroleum Week for 1960 will be conducted on the August 19th issue

PETROLEUM WEEK

OIL'S MOST READABLE MAGAZINE

Largest Paid Circulation in the Industry

ABP ABC

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HUDSON Combin-aire

LOW TEMPERATURE COOLING USING COMBINATION OF MINIMUM WATER AND MAXIMUM AIR

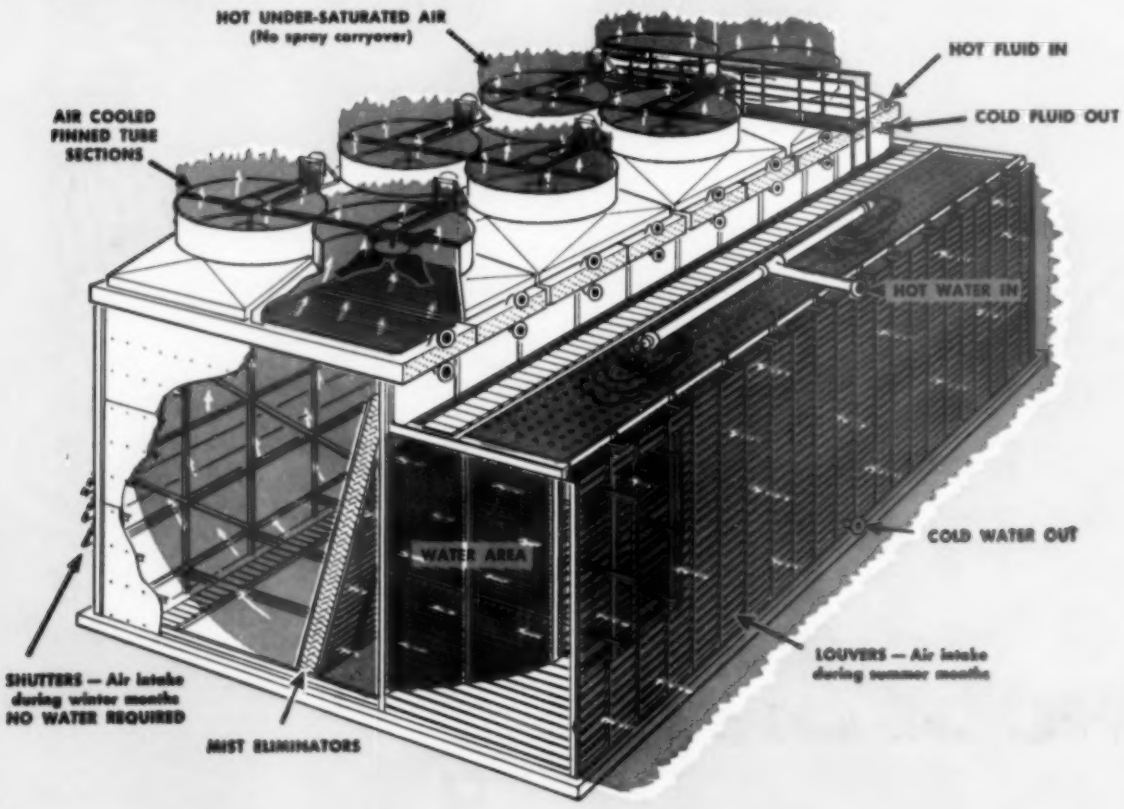
In recent years Hudson Solo-aire cooling in which only air is used as a cooling medium has been installed by the world's largest refineries. In recent cases of three separate 40,000 barrel complete refineries in locations where unlimited water is accessible Hudson Solo-aires are used for *all* process cooling.

So that air could be used for cooling those process streams requiring lower terminal temperatures than obtainable with ambient summer air temperatures, Hudson developed and in 1949 installed the first Combin-aire cooling unit. Since that time Combin-aires have proven their worth in installations for over 80 services in major refineries, chemical plants and gas processing plants in the United States, the Middle East, Europe, Mexico and South America.

In Combin-aire cooling, high temperature ambient air is first pre-cooled by direct contact with water, the cooled air then becoming the low temperature cooling medium for fin-tube elements. Cooling of air, and subsequent use of the cooled air for fin-tube cooling of process streams, are effected in one integrated structure — the Combin-aire.

Cooling with Combin-aire to overcome the occasional limitation of high ambient temperatures has the following advantages:

- **Absolute minimum water consumption consistent with attainment of low terminal process stream temperatures.**
- **Water circulation may be made automatically responsive to air temperatures with no water circulated except at high ambient temperature.**
- **No water treatment necessary. Salt water or brackish water may be used.**
- **No spray carryover or condensation. After passing across the fin-tube elements the heated air leaving the Combin-aire at elevated temperature is undersaturated with water vapor and cannot precipitate condensate or carry water spray.**
- **Minimum piping. Combin-aire may be installed immediately adjacent to other process equipment.**
- **Clean air to fin-tube units. During the hot season air is washed, removing dust, sand and insects.**


HOT UNDER-SATURATED AIR
(No spray carryover)
HOT FLUID IN
COLD FLUID OUT
AIR COOLED FINNED TUBE SECTIONS
HOT WATER IN
WATER AREA
COLD WATER OUT
LOUVERS — Air intake during summer months
SHUTTERS — Air intake during winter months NO WATER REQUIRED
MIST ELIMINATORS

When Combin-aires are installed as adjuncts to cooling systems using existing shell and tube or other water cooled equipment the cooled water from the bottom of the Combin-aire may be used in such equipment. The Combin-aire then takes on the additional function of a water cooling tower with, however, the advantages over conventional cooling towers of dual use of both air and water and elimination of water spray carryover and condensate precipitation.

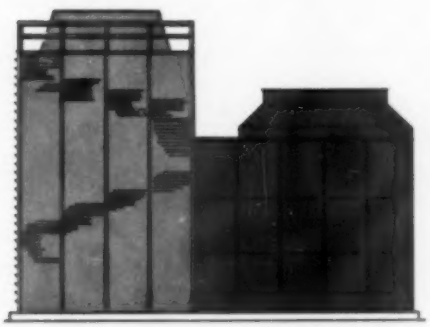
In over 80 services and under a wide range of atmospheric operating conditions Combin-aire units have amply fulfilled performance and mechanical specifications. Before proceeding with a new process unit or revamping or adding to present cooling systems let Hudson give objective assistance in determining the most economic balance in the use of air cooling, Combin-aire cooling and water cooling.

CONVERTING COOLING TOWERS INTO COMBIN-AIRE UNITS

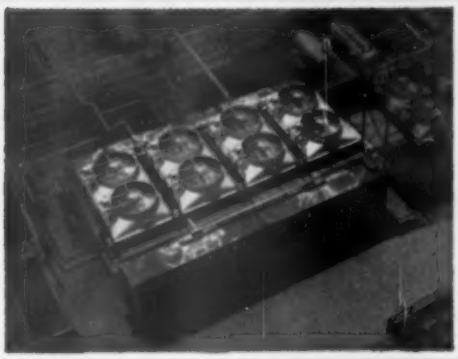
Presently installed cooling towers may be used as the basis for Combin-aire cooling by installing structure with fin-tube elements and fans immediately adjacent to the cooling tower with air for the fin-tube elements being drawn across the water near the bottom of the cooling tower, thus increasing the capacity of the cooling tower, and cooling the air for use in the fin-tube elements.

EXISTING COOLING TOWER

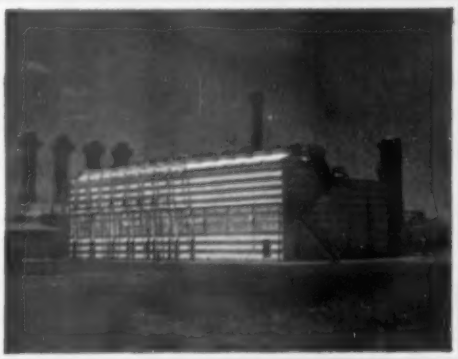
COMBIN-AIRE ADDITION



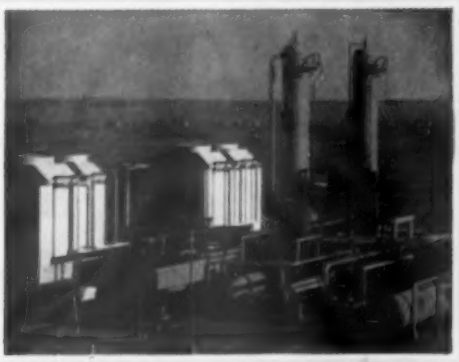
Combin-aire is protected by U. S. Patents, Patents pending and copyrights.



TEXAS —
COSDEN PETROLEUM CORPORATION
Big Spring, Texas



MEXICO —
PETROLEOS MEXICANOS
Reynosa, Tamaulipas, Mexico



PAKISTAN —
PAKISTAN PETROLEUM, LTD.
Sui gas field, West Pakistan

HUDSON

ENGINEERING CORPORATION

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WHAT HAPPENS WHEN A NATION SPENDS MORE ON GAMBLING THAN IT SPENDS FOR HIGHER EDUCATION?

If you can find any Romans around, ask them. They lived pretty high on the hog in their day. That is, until some serious-minded neighbors from up North moved in. The rest is ancient history.

You'd think their fate would have taught us a lesson.

Yet today we Americans spend twenty billion dollars a year for legalized gambling, while we spend a niggardly four-and-a-half billion for higher education. Think of it! Over four times as much! We also spend six-and-a-half billion dollars a year for tobacco, nine billion dollars for alcoholic beverages, and billions more on other non-essentials.

Can't we read the handwriting on the wall?

Our very survival depends on the ability of our colleges and universities to continue to turn out thinking men and women. Yet today many of these fine institutions are hard put to make ends meet. Faculty salaries, generally, are so low that qualified teachers are leaving the campus in alarming numbers for better-paying jobs elsewhere.

In the face of this frightening trend, experts estimate that by 1970 college applications will have doubled.

If we are to keep our place among the leading nations of the world, we must do something about this grim situation before it is too late. The tuition usually paid by a college student covers less than half the actual cost of his education. The balance must somehow be made up by the institution. To meet this deficit even the most heavily endowed colleges and universities have to depend upon the generosity of alumni and public spirited citizens. In other words, they depend upon *you*.

For the sake of our country and our children, won't you do your part? Support the college of your choice *today*. Help it to prepare to meet the challenge of tomorrow. The rewards will be greater than you think.

It's important for you to know what the impending college crisis means to you. Write for a free booklet to HIGHER EDUCATION, Box 36, Times Square Station, New York 36, New York.

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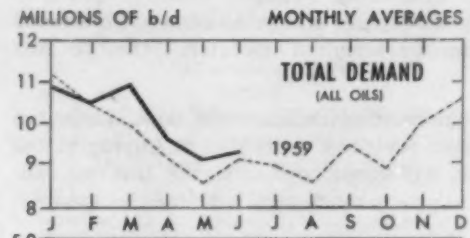
PETROLEUM WEEK'S

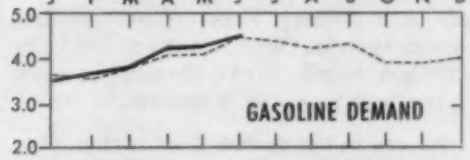
Fingertip Figures



Figures for period ended July 15, except as noted

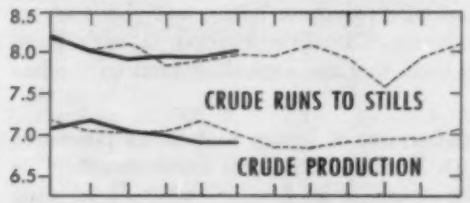
TOTAL DEMAND

Latest 4-week average	9,332
Year ago	9,069



GASOLINE DEMAND

Latest 4-week average	4,640
Year ago	4,518

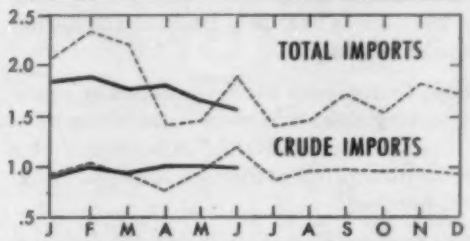


RUNS TO STILLS

Latest week	8,257
Previous week	8,280
Year ago	7,946

CRUDE PRODUCTION

Latest week	6,832
Previous week	6,831
Year ago	6,858

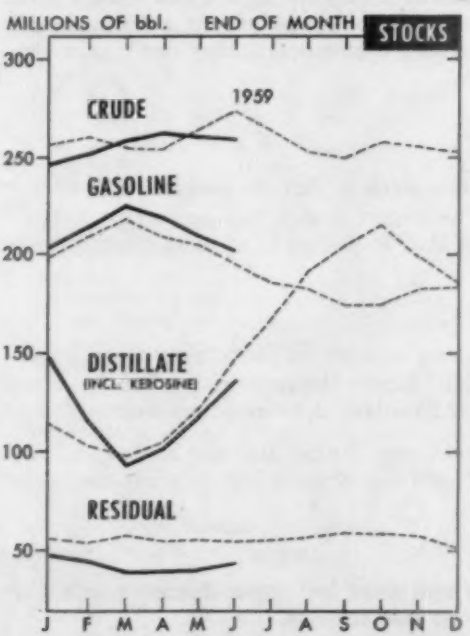


TOTAL IMPORTS

Latest week	1,419
Previous week	1,682
Year ago	1,225

CRUDE IMPORTS

Latest week	.897
Previous week	.969
Year ago	.810



CRUDE STOCKS

Week ended July 9	249.1
Previous week	254.7
Year ago	270.3

GASOLINE

Latest week	197.2
Previous week	201.3
Year ago	189.9

DISTILLATES

Latest week	150.6
Previous week	145.5
Year ago	157.6

RESIDUAL

Latest week	43.0
Previous week	42.7
Year ago	54.3

The low level of crude stocks gives no cause for optimism. Rather, it flags the signal of dangerously high runs.

Refinery runs for the past four weeks have averaged 8,266,000 b/d, or 377,000 b/d higher than a year ago.

Crude stocks have decreased 21.2-million bbl. from mid-July, 1959, to 249,100,000 bbl.

This is about 8-million bbl. short of what the industry considers adequate crude inventory at this time of year.

In effect, refiners are swapping crude stocks for products inventories. And most products aren't easy to move in a period of seasonally low demand.

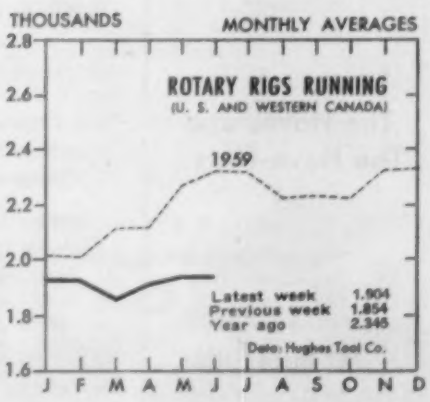
Gasoline demand, averaging 4,640,000 b/d in the past four weeks, is 122,000 b/d higher than the same four-week period of 1959. But due to high runs, the drawdown in gasoline stocks has been relatively slight.

Also, the high runs are responsible for a high rate of stocks of inventory build-up of distillates.

Despite the sharp withdrawals from crude stocks, over-all inventories of crude and products are estimated to be about 52-million bbl. above industry target levels.

The recent rise in products prices on the Gulf Coast and the resultant improvement in profit margins may be the reason that refiners are in no hurry to trim throughput.

Refiners' margins on the Texas Gulf Coast in July averaged 87¢ a bbl., the best since April, 1959, and the highest for any July since 1957.



The Market Trend

Nobody Feels the Same About Anything

The delegations have all been polled, and nobody agrees on anything. Refiners, producers, tow owners, chartering brokers—nobody seems to come up with the same slant on the shape of things to come. (There's no use checking with independent tanker terminal operators; they've just about all been bought out).

Domestic refiners seem to be the most optimistic right now. Maybe too optimistic. They've had a minor Suez revisited, with a lot of buying in the marketplace. Prices, refiners think, will keep right on rising. But one cautious refiner feels that increases are pretty much over with for the summer.

Domestic producers vary more than refiners. Most of the optimism centers in West Texas, where sour crude is tight. Oklahomans still are wary from the break in the Illinois Basin last month. Rocky Mountain sellers, and sellers of light California oils, continue to peddle discounts.

Owners of Mississippi River tows are in the dumps. Last spring, they confidently hoped to get 0.2¢ a ton-mile for clean hauls, but now they've been settling for 0.18¢ or thereabouts. The dirty market is very poor. There's not much resid around to haul, and the asphalt season so far has been slow.

The tanker business is at odds because of Jersey Standard's strictures against shipowners who trade with Russia. "Economic statesmanship" is what you hear on this side of the Atlantic. In London, where free-trade notions are much more in evidence, the view is held that Russian chartering in a distress market offers welcome employment.

International producers just hope that nobody rocks the boat any worse than it's being rocked already. Disquieting news this week included an offer of Kuwait crude to the U.S. West Coast at "below $2.00." Also, Brazil this week may be buying spot, instead of contract, in the Persian Gulf—and that means playing one seller off against another.

And foreign refiners are somewhere between a rock and a hard spot. Gulf Coast gasoline prices are up. Do Caribbean refiners in a discount-shot market follow? If they do, they irritate customers. If they don't, they irritate the Venezuelan government.

'Seaton's Increase'

The joke in East Coast markets this week is that the residual hike of 15¢ is called "Seaton's increase." The import quotas for the current quarter are so tight, suppliers feel, that they're pulling in on sales commitments —and raising prices.

The Haves and The Have-Nots:

And the residual increase puts a real squeeze on East Coast cargo buyers who don't hold an import "ticket." Under the new price schedules, these "have-nots" are paying up to $2.25 a bbl., delivered New York.

Now contrast that case with a quota man. He can still buy bunker "C" fuel down to $1.60 a bbl., f.o.b. the Caribbean. Freight and duty put his landed New York price at about $1.85.

Jet Fuel Bids:

JP-4 bids in the Caribbean were real close last week. Texaco was low at 6.08¢. Shell and Esso Export were tied at 6.12¢.

The Market Place AROUND THE WORLD

Prices compiled for PETROLEUM WEEK by Platt's OILGRAM Price Service and National Petroleum News, McGraw-Hill Publications

All prices as of July 18

Bold face type indicates changes from previous week

KEY PRICES—REFINED PRODUCTS

(¢ per gal. except dollars per bbl. where $ is shown)

Western Hemisphere

U.S. Gulf Coast, cargoes
- Gasoline, 98 oct prem 12-12.75
- Gasoline, 92 oct reg 11
- Kerosine 9-10
- Heating oil, No. 2 ..... 8.25-9
- Gas oil, 48-52, d.i. 8.5-8.875
- **Fuel oil, bunker "C" ..... $2.30↑**

Caribbean, cargoes
- Avgas, Grade 100/130 ..... 14.75
- Gasoline, 93 oct research prem 11
- Gasoline, 87 oct research reg 10.125
- Gasoline, 80 oct research 9.375
- Gasoline, 70-72 oct motor method 9.25
- Kerosine 9.25
- **Heating oil, No. 2 ..... 8.124↑-8.25↑**
- **Gas oil, 48-52 d.i. ..... 8.375↑-8.5↑**
- Fuel oil, bunker "C" $2.00

New York Harbor, barges
- Kerosine 9.8-10.3
- Heating oil, No. 2 ..... 8.8-9.3
- **Fuel oil, No. 6 ..... $2.62↑**

Okla.-Group 3, northern shpt., bulk
- Gasoline, 91 oct reg 12-12.75
- **Kerosine ..... 9.375-9.75↑**
- Heating oil, No. 2 8-9
- Fuel oil, No. 6 ..... $1.80-1.90

Chicago, bulk
- **Gasoline, 91 oct reg ..... 12.5↑**
- Heating oil, No. 2 ..... 9-10.35
- Fuel oil, No. 6 high sulfur 7.4

Los Angeles, rack
- Gasoline, 88 oct reg 11.15-12.65
- Diesel fuel, PS 200 ..... 7.75-11.25
- Light fuel, PS 300 ..... $2.80
- Heavy fuel, PS 400 ..... $2.15-2.35

Natural Gasoline, Grade 26-70
- FOB Group 3 ..... 4.5
- FOB Breckenridge, Tex. 4

LP-Gas
- Propane, Oklahoma (Group 3) 3.5-4
- Propane, Baton Rouge 4.625

Pennsylvania Lubes
- Bright stock, 25 p.t. 24
- 200 vis. neutral, 25 p.t. 27

Mid-Continent Lubes, Tulsa basis
- Bright stock, solvent, 95 v.i. 26-27
- Neutral, solvent, 200-210 vis. 23-24

Gulf Coast Lubes
- Bright stock, solvent, 95 v.i. 26
- Neutral, solvent, 200 vis. 23

Eastern Hemisphere

Singapore (Pulau Bukom) cargoes
- Avgas, grade 100/130 ..... 15.875
- Gasoline, 79 oct research 9.75
- Kerosine 10.125
- Gas oil, 48 d.i. minimum 9.5

KEY PRICES—CRUDE OIL

(2¢ differential per deg. of grav. applies except as noted)

Western Hemisphere

United States (at the well)
- Mid-Continent, (Okla.-Kan.), 36.0-36.9 ..... $2.62-2.97
- North Dakota, 36.0-36.9 ..... 2.47-2.87
- Texas:
  - Gulf Coast, low cold test, 26.0-26.9 ..... 3.50
  - Gulf Coast, Upper & Lower, 26.0-26.9 ..... 2.92-3.22
  - West Texas, sweet, 36.0-36.9 ..... 3.00
  - West Texas, N.M., inter., 36.0-36.9 ..... 2.93
  - West Texas, N.M., sour, 32.0-32.9 ..... 2.71
  - East Texas, flat 3.05-3.25
  - Mirando, 28.0-28.9 ..... 2.96-3.31
- Illinois Basin, flat 2.85-3.00
- Pennsylvania Grade, Bradford dist., flat 4.70
- California, Signal Hill, 21.0-21.9 ..... 2.32↑
- North Louisiana-Arkansas, 36.0-36.9 ..... 2.72-3.02
- Wyoming, sweet, 36.0-36.9 ..... 2.85-2.90
- Wyoming, sour, 32.0-32.9 ..... 2.63-2.71

Canada (flat prices, at the well)
- Pembina (Alta.) $2.38
- Leduc-Woodbend (Alta.) 2.53
- Redwater Alta.) 2.42
- Steelman A (Sask.) 2.44
- Virden (Man.) 2.30

Venezuela (Cargoes, FOB lifting port designated)
- San Joaquin, 41.0-41.9, Puerto la Cruz $3.10
- Oficina, 35.0-35.9, Puerto la Cruz 2.78-2.80
- Tia Juana, Medium, 26.0-26.9, Amuay 2.30
- Bachaquero, flat La Salina 1.85
- Tarra, 38.0-38.9, San Lorenzo 2.83
- Lagunillas Heavy, flat, La Salina 2.07

†Differential per deg. of grav. varies

Eastern Hemisphere

Middle East, Persian Gulf (Cargoes, FOB lifting port)
- Arabia, 34.0-34.9, Ras Tanura $1.90
- Safaniya, 27.0-27.9, Ras Tanura 1.50
- Iran, 34.0-34.9, Bandar Mashur 1.86
- Iran, 34.0-34.9, Abadan 1.81
- Iraq, 35.0-35.9, Fao 1.80
- Kuwait, 31.0-31.9, Mina-al-Ahmadi 1.67
- Qatar, 41.0-41.9, Umm Said 2.05
- Neutral Zone, Burghan, 23.5-24.4, Mina Saud 1.51
- N. Zone, Eocene-Ratawi, 20.5-21.4, Mina Saud 1.38

Middle East, Eastern Mediterranean
- Arabia, 34.0-34.9, Sidon $2.27
- Iraq, 36.0-36.9, Tripoli, Banias 2.31

Far East, Cargoes, FOB Lutong, Sarawak
- Seria Light, flat $2.57

KEY TANKER RATES

(Last paid, per long ton, single voyage)

- U.S. Gulf-New York, clean ..... (USMC—25%) $2.14
- U.S. Gulf-New York, dirty ..... (USMC—25%) $2.14
- **NWI-USNH, dirty ..... (USMC—60%) $1.10↓**
- NWI-UK/Cont., dirty ..... (Scale—52½) 15/7*
- **Persian Gulf-UK/Cont., dirty (Scale—65%) 23/5*↑**
- Persian Gulf-USNH, dirty ..... (USMC—77½%) $2.86

**Sterling*

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CHARLES T. KLEIN has been elected to a newly created vice-presidency at Cities Service Gas Co., with headquarters in Oklahoma City. He was most recently manager of the natural gas division and a director of Cities Service Oil Co., Bartlesville, Okla., principal producing company in the Cities Service group. Klein joined Cities Service Oil in 1946 as an attorney in the legal division.

P. A. Dennie

C. T. Klein

POWELL A. DENNIE has been named assistant to the vice-president of Shell Oil Co.'s Pacific Coast exploration and production area, with offices in Los Angeles. He replaces **J. T. Doyle**, who has been transferred to the company's head office gas department in New York. Dennie has been manager of Shell's production division at Roswell, N. M., and before that was exploitation engineer there.

LESTER T. POTTER, president of Lone Star Gas Co., Dallas, has been nominated for president of the American Gas Assn. Elections will be held at the AGA annual meeting in Atlantic City, N. J., on Oct. 12. Other nominees for AGA posts are: **Edward H. Smoker**, president of United Gas Improvement Co., Philadelphia, first vice-president; **John E. Heyke**, president of Brooklyn Union Gas Co., Brooklyn, N. Y., second vice-president; and **Charles H. Mann**, treasurer of Columbia Gas System, Inc., New York City, treasurer.

FREDERIC B. LOOMIS is the new chief geologist of Clark Oil & Refining Corp.'s Denver exploration and production division. Loomis, who has been associated with Shell Oil Co., joined Clark this year.

CHARLES A. LOCKHARD has been elected secretary of the Empire State Petroleum Assn., succeeding the late **Harry B. Hilts. Robert A. Stromberg**, assistant executive secretary of the New York State Petroleum Council, becomes ESPA's assistant secretary.

THORNTON F. BRADSHAW, vice-president and a director of Atlantic Refining Co., Philadelphia, is a new director of Atlas Powder Co., Wilmington, Del.

W. C. CRAWFORD, Humble Oil & Refining Co., Houston, has been named chairman of the annual federal tax forum of the general Mid-Continent Oil & Gas Assn. He succeeds **Charles R. Bell**, Continental Oil Co., Houston. **James W. Baldwin**, Cities Service Oil Co., Bartlesville, Okla., is first vice-chairman of the forum, and **Robert Rolston**, Skelly Oil Co., Tulsa, is second vice-chairman.

WILLIAM R. CLARK is the new assistant chief geologist for Natural Gas Storage Co. of Illinois, Chicago. Clark, who joined the company in 1952, has been district geologist at Joliet, Ill., since 1955. Clark will continue to work at the Joliet laboratory.

J. S. KITTLE is the new services manager in the production and pipeline department of British American Oil Co., Ltd., in Calgary. He replaces **E. R. Link**, who has transferred to the company's head office in Toronto. Kittle was formerly supervisor of purchasing and special services.

ALBERT WRIGHT is the new producing coordinator for Standard-Vacuum Oil Co., with headquarters in White Plains, N. Y. He succeeds **Harry A. Gibbon**, who is retiring after 35 years with the company. Wright, who joined Stanvac in 1938 as chief petroleum engineer and assistant producing superintendent of its producing and refining subsidiary in Indonesia, became chief landman in the headquarters exploration department at New York in 1950. He was appointed coordinator of Indonesian affairs at headquarters in 1951, and has been assistant producing coordinator since 1956.

A. Wright

R. E. Roehl

ROBERT E. ROEHL has rejoined Cities Service Co., New York, following one year's service as coordinator of transportation in the Interior Dept.'s Office of Oil & Gas. Before his service with the government, Roehl was assistant to the manager of transportation and supply for Cities Service. In his new position, he will coordinate foreign supply and transportation activities for Cities Service International, Inc.

R. A. GRADY is the new regional manager of the production department, and **R. H. HEDGECOCK** is the regional manager of the land department, for the Mid-Continent division of Columbia Carbon Co. Grady succeeds **W. M. Greenwell**, who has retired, and Hedgecock succeeds **H. Scott Thompson**, who was recently promoted to general manager of that division. Grady and Hedgecock will be located at the company's Houston office.

DR. GEORGE W. AYERS has been named to the new position of senior research associate at Pure Oil Co.'s research center, at Crystal Lake, Ill. It is the highest nonadministrative appointment ever made on the research staff. Ayers, whose field is organic synthesis and research, has been with Pure for 34 years. **Glenn A. Marsh** has been promoted to research associate. He is head of the center's studies on corrosion.

G. W. Ayers

R. C. Adam

RAY C. ADAM is manager of Socony Mobil Oil Co.'s new planning, analysis, and economics department, which combines the planning and analysis department and the economics department. Adam, who joined the company in 1946, was formerly manager of planning and analysis. In the new department, **Ralph R. Dickson, Jr.**, is manager of economics, and **James Q. Riordan** is manager of planning and analysis. Dickson was formerly manager of the company's special studies, and Riordan was planning associate with Mobil International Oil Co.

KARL T. FELDMAN, part-interest executive of Sinclair Pipe Line Co., Independence, Kan., has been elected a director of Great Lakes Pipe Line Co., Kansas City, Mo. He succeeds **James E. Dyer**, vice-chairman of Sinclair Oil Corp. Sinclair Pipe Line owns a stock interest in Great Lakes Pipe Line, a products carrier operating in the central and north-central United States.

IRA E. McKEEVER has been appointed general manager of sulphur operations of Texas Gulf Sulphur Co., with offices in Newgulf, Tex. In his new position, he will work under the supervision of **Hugh W. Strickland**, who is vice-president in charge of operations in the Gulf Coast region. McKeever joined Texas Gulf in 1952 as a member of the exploration department in Houston, and was vice-president of Texas Latin Exploration Co., a subsidiary in Palermo, Sicily, from 1956 to 1959. During that time he had charge of a drilling program in Sicily, and supervised geological inspections in Egypt, Ethiopia, and Germany. He also became assistant manager of mining exploration for Texas Gulf in 1958. Since returning from Sicily last year, he has had assignments in the United States and Australia.

E. A. HIGGINS, J. F. SINCLAIR, and **W. F. G. L. STARRENBURG** are new directors of Shell International Petroleum Co., Ltd., London, and **M. J. GATTIKER** is a new director of Bataafse Internationale Petroleum Mij. N. V., The Hague. The companies are two of the four service companies of the Royal Dutch Shell Group. Higgins is supply and planning coordinator of Shell International, and Sinclair is regional coordinator, oil, East and Australasia. Starrenburg was appointed exploration and production coordinator for Bataafse last year. He is now Shell International's regional coordinator, oil, Caribbean and Central and South America. Gattiker, who has been with the group since 1929, is now manufacturing coordinator, oil, for Bataafse Internationale, in The Hague.

WILLIAM P. McDONNELL has joined the New York petrochemicals sales office of Gulf Oil Corp. He has been a sales representative in New England for Michigan Chemical Corp., since 1957.

MARTIN A. ROW assumes the newly created position of counsel for regulatory and natural gas matters for Sun Oil Co., with offices in Dallas. **Charles F. Heidrick** succeeds Row as general attorney for Sun's southwest production division, in Dallas. Heidrick was previously assistant general attorney for the Gulf Coast production division, at Beaumont, Tex.

LARRY A. BRADEN is Tidewater Oil Co.'s new production manager of the Saskatchewan project for which Tidewater is operator for Atlantic Refining Co., Columbian Carbon Co., Ohio Oil Co., and itself. He will be located at Regina. Braden was formerly production superintendent for Tidewater's San Joaquin Valley (Calif.) area. **E. H. Shuler**, formerly production manager at Regina, transfers to Tidewater's offices in Lafayette, La.

A. H. HAYES moves up to manager of the planning division in the manufacturing department of Standard Oil Co. (Ind.), at the Chicago general office. Hayes was formerly senior assistant manager of the company's Whiting (Ind.) refinery. **R. G. Anderson**, formerly superintendent of the light oils division at the refinery, has been appointed an assistant manager there.

J. J. MAURER, JR., becomes manager of Delhi-Taylor Oil Corp.'s manufacturing division, in Dallas, and **Lewis Gross** becomes manager of research and development there. Maurer was formerly refinery manager at Corpus Christi, and Gross was chief engineer of manufacturing there. Three other executives moving from Corpus Christi to Dallas are: **Frank A. Reneau**, director of safety and training; **George Owsley**, manager of distribution for the chemical division; and **T. A. Wooters**, manager of crude oil and LPG sales.

ERNEST ARTZ has joined SunOlin Chemical Co., Philadelphia, as process engineering assistant. He was formerly superintendent of operations at the U. S. Air Force high-energy fuel plant operated by Olin Mathieson Chemical Corp. at Model City, near Niagara Falls, N. Y. Artz will work directly with **Richard D. Burt**, who is in charge of SunOlin's current engineering planning.

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AREA FOR CONCESSION

Quaiti and Kathiri Governments in the Eastern Aden Protectorate invite applications from oil companies for a concession or concessions to explore for and exploit oil in an area of about 5,000 square miles of desert in the region of Thamud (about 17° 20' North 49° 55' East). Oil companies who wish to be considered should submit their applications to: The State Secretaries, Quaiti and Kathiri Governments, c/o. the Protectorate Secretary, the Secretariat, Aden.

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More Oil Flags Will Have 50 Stars

THE PETROLEUM INDUSTRY is taking on a new face which represents considerably more than just internal consolidations within companies and, in some cases, changes in corporate banners.

The ultimate plan for many companies is for their corporate flags to have as many domestic marketing stars as Old Glory. The various changes in the corporate structures that have gone into effect, or are planned for the near future, are just the starting points for the more significant development.

And that is the greatest competitive drive for markets in the history of the industry—with the entire nation as the battleground for the slugfest.

Tradition, economics, and the risks of trademark infringement have been the primary factors holding back such a move for oil companies generally in the past. Economics will continue to limit many—both large and small—to established marketing territories. Tradition, however, is no longer a limiting factor in market expansion. And the risks of territory invasions are being removed with the changes in company banners.

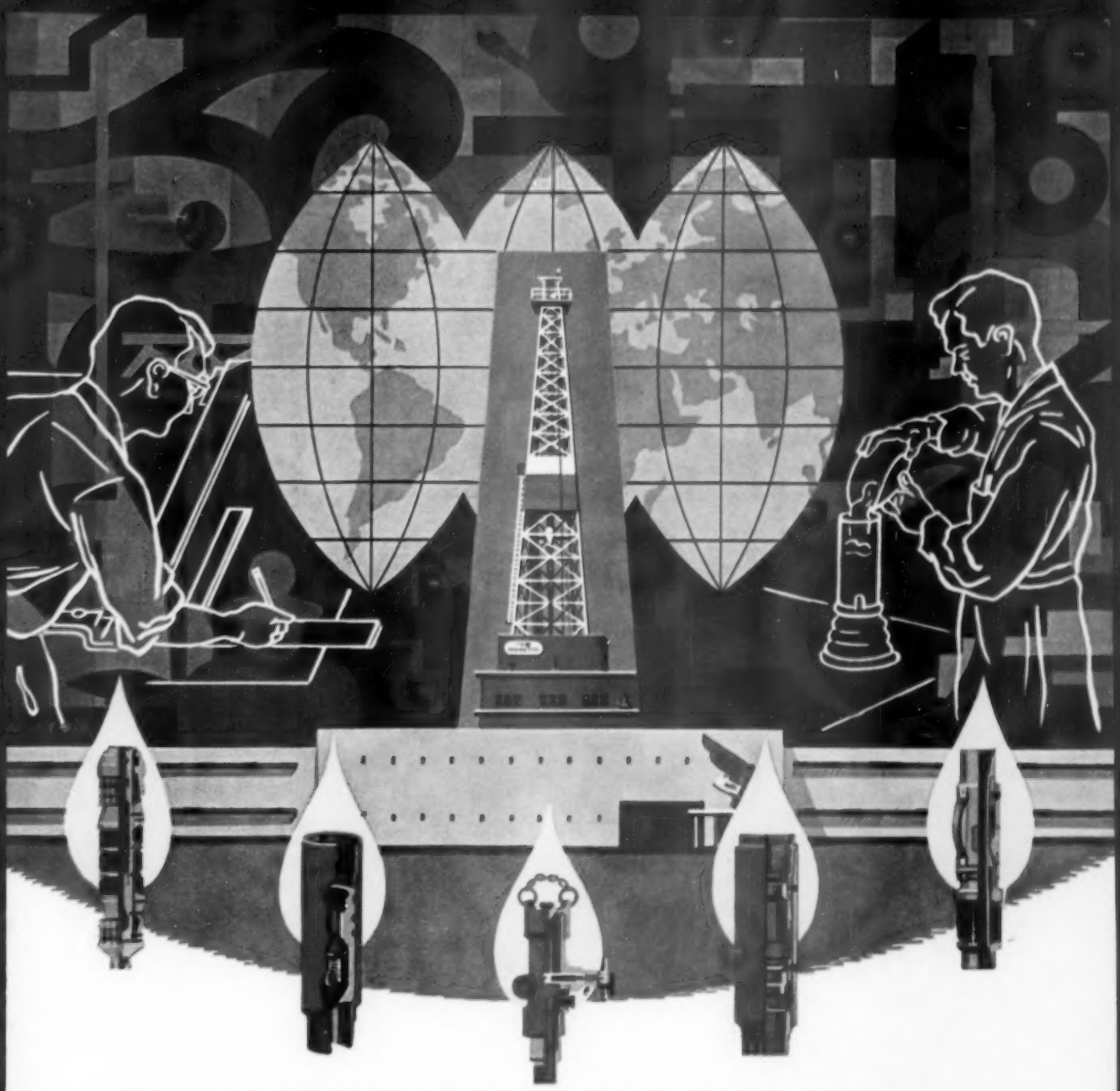
THE GROWING NATIONAL IMAGE of some companies may, as an incidental point, help to correct some of the misconceptions of the industry held by the public. More entries on the nationwide competitive scene should focus more emphasis on the true competitive nature of the oil business.

And along the same lines, perhaps the move may serve to clear up the misapprehension that the petroleum industry is just one big company, due to the similarity of some competitive names. The name "Standard Oil" has meant just one big coast-to-coast company to many consumers who do not realize that, in some areas, the "Standards" are direct competitors all the way from the wellhead to the service station driveway.

It should be obvious to the industry that any such change won't be painless. Unquestionably, the more intense the competition, the greater the likelihood that the least efficient entities will suffer.

So for all companies, the tightening of the competitive drive will require further improvements in efficiency to meet the challenge of the industry's new image.

NO INDUSTRY THAT REMAINED STATIC has ever lasted long in the American economy. It has always been the competitive push that has built strong industries. And because of such competitive efforts, the consumer—i.e. the public—has always been the beneficiary of the greater efficiency fostered by competition.



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Many of the tools, techniques and products recently developed by Dowell for improving well stimulation treatments are being used effectively in *secondary recovery* operations. For example, *Rockshock** — a new service using implosion capsules to lower injection pressures; *Abrasijet** — a service used to clean the formation face and condition the zone for better fluid acceptance; *Ezeflo** — a low-pour-point surfactant used to lower water injection pressure; *Slick Water* — a friction-reducing agent used to cut pumping pressures by more than half during stimulation treatments; and a special agent used to remove calcium sulfate and other scale deposits from formations and down-hole equipment. These are only a few of Dowell's new services and products — more new ideas are on the way. If you're involved in secondary recovery work, it will pay you to *dial Dowell*. Dowell, Tulsa 1, Oklahoma.

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